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Stress as a Badge of Honor: Relationships with Employee Performance, Health, and Well-Being

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STRESS AS A BADGE OF HONOR: RELATIONSHIPS WITH EMPLOYEE
PERFORMANCE, HEALTH, AND WELL-BEING

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctorate of Philosophy
Industrial-Organizational Psychology

by
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ABSTRACT

The present study was designed to develop a measure to capture the perception of being “stressed” as honorable or impressive, termed Stress Badge. The sentiment that having a high amount of stressors is positive and laudatory has been highlighted in the popular media, yet has not received research attention. The study examined construct validity evidence for the Stress Badge, which was proposed to have three primary internal dimensions: Stress as Achievement, Relaxation Remorse, and Stress-Related Social Comparison; and one external dimension of Stress-Related Impression Management. In Study 1, a Confirmatory Factor Analysis (CFA) conducted with a sample of 248 employees from Amazon’s Mechanical Turk (MTurk) provided evidence that a four-factor structure fit the Stress Badge measure well. Study 2 was a longitudinal study of MTurk workers (Time 1 $N = 1077$; Matched $N = 752$) who completed a survey with the Stress Badge measure, convergent and discriminant validity measures (Time 1), and measures of health, wellbeing, and performance (Time 2). A CFA provided evidence that the three internal subscales of the Stress Badge measure were related to, but unique from, convergent validity measures (e.g., workaholism, perfectionism) and were not highly related to general affect or social desirability. Results of Structural Equation Modeling analyses showed that the Stress Badge was associated with better performance, but worse health outcomes and higher work-family conflict. Many of these relationships were explained by an indirect relationship through recovery experiences and perceived stress. While there was evidence of predictive validity and mediated relationships, analyses of incremental effects beyond convergent validity measures were less consistent. The results

of the study have empirical contributions through the development of a novel construct, as well as practical implications in informing interventions to promote optimal views of workplace stressors.

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CHAPTER ONE

INTRODUCTION

Stress has become a widespread phenomenon in American culture. Many individuals report experiencing high levels of stress, yet do not engage in efforts to manage their levels of stressors or responses to stressors well. The Stress in America survey administered by the American Psychological Association (APA, 2015) documented several concerning trends in experienced stress. First, 29% of adults reported that their stress level has increased over the past five years. In addition, 42% of adults said they were not doing enough to manage their stress, with a troubling 20% reporting that they *never* engage in stress management activities. Work is consistently reported as one of the top sources of stress (APA, 2013; 2015), highlighting the need for organizational research to better understand prominent sources and impacts of work stressors.

The effects of stressors are generally understood as having the potential to cause damage to an individual's health and wellbeing through various physiological and psychological processes (e.g., Ganster & Rosen, 2013). Many models support the proposition that stressors ultimately cause wear and tear on the body and the systems associated with the stress response. Further, researchers have found strong relationships between work-related stressors and mental health (e.g., DeLange et al., 2008), and meta-analytic evidence for the positive relationship between work stressors and physical health symptoms (Nixon et al., 2011).

These effects of stressors on health are concerning, not only for individuals, but also for organizations. Workplace stressors that harm employee health (DeLange et al., 2008; Nixon et al., 2011) may further be associated with poor performance. For instance, a meta-analysis by Ford et al., (2011) found moderate to strong correlations between physical and mental health symptoms and work performance. Some financial estimates suggest that employee stress can accrue a cost of up to \$350 billion per year in the United States, through absenteeism, reduced productivity while at work, and health care costs for illness and injury (e.g., Miree, 2007).

However, not all research takes a purely negative view of stress. Some studies and theoretical perspectives suggest that stress can have some beneficial effects in terms of focusing one's effort, challenging an individual to reach maximum performance, and potentially providing a sense of accomplishment or meaning (e.g., Britt & Jex, 2015; Crawford, LePine, & Rick, 2010; Crum, Salovey, & Achor, 2013; Tedeschi & Calhoun, 2004). There is support for both of these stances of stress as enhancing in some ways, but debilitating in other ways. A core question of the proposed study is whether individuals internalize beliefs that stress is a means of achievement, and thus honorable, and what impact that perception may have on employee performance, health, and wellbeing.

Purpose of the Proposed Study

The goal of the proposed study is to develop a measure to capture the perception of being “stressed” as honorable or impressive, termed Stress Badge. The sentiment that being stressed is positive and laudatory has been highlighted in the popular media, yet it has not received research attention. While the literature on organizational stress has

investigated many important topics, there seems to be a gap in understanding the social-cognitive and interpersonal dynamics of the experience of a high amount of stressors. While studies have considered personal dispositions or appraisals of an employee when facing a given stressor (e.g., challenge/threat appraisals, LePine, Podsakoff, & LePine, 2005; performance enhancing or debilitating stress mindsets, Crum et al., 2013), no studies to the author's knowledge have sought to integrate personal beliefs and social beliefs about the experience of a high amount of stressors. In considering the interpersonal dynamics of experienced stressors, it is apparent in everyday interactions that many individuals use their level of stressors to communicate their hard work, level of busyness, or even their worth to an organization. Employees may desire to have a high amount of stressors, and feel guilt when relaxing, because of the self and (potentially) culturally imposed ideal that successful people are busy and busy people are stressed.

In the present study, the Stress Badge construct is defined as the perception of a high amount of stressors as impressive, with experienced remorse for relaxing and the tendency to constantly compare one's level of stressors to others. The construct was specifically operationalized to focus on the stressor of a high workload (i.e., quantitative work overload), as this is a common and clearly identifiable stressor. Further a stressor focused on the "amount" of work was considered to align best with the comparative components of the Stress Badge measure. While studies have shown that participants do not clearly differentiate between stressors, stress, and strain as researchers do (Jex, Beehr, & Roberts, 1992), these steps were taken to try to maintain clarity in the initial development of the construct.

In understanding the proposed construct, it is important to note that feeling proud of overcoming stressful circumstances or challenging tasks in itself may not be negative. However, the current study concerns a presumably more stable disposition to view the experience of a high amount of stressors in this manner (note, the stability of the construct will be empirically tested by examining correlations over time in a longitudinal study). Individuals who exhibit the Stress Badge may view consistently high levels of stressors as normal, and even impressive, and find time for relaxation as unnecessary or unproductive. These persistent views may ultimately result in less adaptive health and wellbeing outcomes.

The need to understand this potential construct is evident, and informed by popular culture beliefs and sociological findings that busyness has become a cultural norm, particularly in the American culture. For example, Gershuny (2005) proposed that busyness has become a badge of honor, rather than leisure. Roberts (2007) also reviewed evidence that westernized countries increasingly exhibit a “long-hours” culture. He particularly commented that even when Americans recognize they work too long, they “prefer to congratulate themselves on their selfless sacrifice (p.334)” rather than easing up. These potential perceptions of high workloads as laudable are not clearly captured in existing measures, but could be exceptionally valuable in better understanding the potential effects of a disposition toward stressors as impressive.

More objective reports support the potential presence of such “long-hours” norms, where the United States is commonly ranked as working the highest number of hours among industrialized nations (e.g., Fleck, 2009; Lee, McCann, & Messenger, 2005).

Recent time use surveys of Americans reported that employed persons spend an average of 8.9 hours a day at work or engaged in work-related activities (Bureau of Labor Statistics, 2014). Cultural differences may also change the nature of the relationship between working hours and health and wellbeing outcomes. In a study comparing the United States to Germany, Kleiner, Schunck, and Schömann (2015) found that there was a less negative relationship between very long working hours and mental health in the United States, as compared to Germany. They attributed this to a more normal nature of high work hours in salaried, American jobs, whereas very long work hours would most likely be outside the norm of a working contract for German employees. Thus, long-working hours cultures like the United States face an interesting dilemma—even though employees may be less impacted by high amounts of work, should this remain a cultural norm?

While Americans may be more accepting of high work hours and high levels of stressors, such excessive stressors may still be costly for individuals and organizations. For example, one study found that working hours reaching over 12 hours a day or 60 hours a week are associated with higher illness and injury rates, across a variety of occupations (Dembe, Erikson, Delbos, & banks, 2005). Specific occupational or individual characteristics could also create a context where the effects of high stressors are overlooked or minimized. In fact, some evidence suggests that there can be health consequences of work stressors, such as high blood pressure, even if an employee does not report experiencing a negative state (Friedman et al., 2001). Employees within certain occupations may underreport risk or experienced strain due to the normality of stressors

in such contexts. For example, studies have found that bus drivers have higher rates of hypertension and other health concerns compared to other employee samples, but commonly underreport their own risks (Ragland et al., 1987; Winkebly, Ragland, Fisher, & Syme, 1988).

Further, general individual differences (e.g., family history of blood pressure problems) can be associated with a lower likelihood to report experiencing stressors, while still having a detectable physiological response to stress (Theorell, 1990).

Together, these studies provide evidence that it is indeed possible for cultural and organizational norms or individual differences to create a context where high levels of stress are accepted, but still incur health costs. That is, even if individuals begin to see long working hours as “normal”, or view the experience of certain stressors as normal within their job context, it would be premature to say that employee health and organizational functioning are not impacted by excessive stressors. Similar patterns could occur based on an individual’s perception of experienced stressors as impressive or honorable in a variety of occupational settings.

In addition to trends of work-related stress, values of busyness, and the potential for organizational or individual conditions to minimize concerns about stressors, several existing constructs from organizational research are reviewed in order to better characterize the conceptual uniqueness of the Stress Badge construct and incorporate the novel measure into a nomological network. These existing constructs represent traits or characteristics that may be adaptive in some ways, but debilitating in others (e.g., workaholism, DelLibano et al., 2010; perfectionism, Hewitt & Flett, 1991; and general

social comparisons, Gibbons & Buunk, 1999). In each of these cases, these attitudes or behaviors may be adaptive in employee performance in some circumstances, but have a more negative impact on health outcomes. Though these constructs all represent potentially problematic attitudes or behaviors, none capture the perception of stress as laudatory. Thus, the development of the Stress Badge construct represents a novel area for organizational research. Conceptual overlap among existing constructs and nuances of the Stress Badge construct will be discussed in more detail in a review of the literature in Chapter 3 to further develop the proposed construct in relation to existing measures.

Building upon work in the aforementioned research areas, as well as incorporating multiple components of the novel construct, the proposed study conceptualizes the Stress Badge as composed of three core dimensions: Stress as Achievement (i.e., the perception that high amounts of stressors are a means to achievement), Relaxation Remorse (i.e., feeling guilty for not working, taking breaks), and Stress-Related Social Comparison (i.e., habitually comparing one's stress levels to others). These three dimensions target the important areas of how an individual personally feels about stressor levels and relaxation, as well as whether he or she mentally compares stressor levels to others. In addition, an external expression of stress as a badge of honor is theorized as Stress-Related Impression Management, or trying to create an image for audiences so that one appears to be under a high amount of work stressors.

These sub-dimensions are organized by a framework of internal thoughts of one's perceptions of stress (i.e., Stress as Achievement, Relaxation Remorse, Stress-Related Social Comparison) and externally directed behaviors of Stress-Related Impression

Management. The internal-external framework parallels common social-cognitive psychological theories, which are used to explain health-related behaviors and outcomes through both personal attitudes and social observations or interactions (e.g., Theory of Planned Behavior, Social Learning Theory). Similar to Social-Cognitive theories, individuals may learn norms about stressors through their environment, and combine such norms with personal beliefs about experiencing high amounts of stressors. Studies of related constructs, such as workaholism, have also found evidence of individual and contextual contributors to potentially maladaptive workplace attitudes (e.g., Keller, Spurk, Baumeler, & Hirschi, 2016). In the context of the present study, it was expected that the internal perceptions of stress as honorable would form a second-order construct and that the external expression of these perceptions through Stress-Related Impression Management would exacerbate relationships with outcomes that are social in nature.

The present studies sought to provide evidence for the construct validity of the Stress Badge measure. The related constructs discussed above were compared to the Stress Badge measure to establish convergent validity and better situate the Stress Badge measure within a nomological network of existing measures. In addition, measures that are expected to be unrelated to the Stress Badge (e.g., positive and negative affect; social desirability) were correlated with the Stress Badge measure to establish discriminant validity. The proposed study also determined how the Stress Badge was related to both employee performance and health and wellbeing outcomes. Health and wellbeing outcomes included mental health symptoms (i.e., depression, anxiety), physical health assessed through an inventory of health symptoms, and relational health (i.e., relationship

quality, work-life conflict). Curvilinear relationships were examined for performance to determine whether there was any performance benefit of seeing stress as honorable, or if the perception was more detrimental.

The study addressed these research questions using strong design features. Initial validity evidence for the measure was obtained through a cross-sectional pilot study sample (Study 1) and a longitudinal sample (Study 2) recruited via Amazon's Mechanical Turk (MTurk). Open-ended responses were collected along with the initial administration of the measure in Study 1 to gain more information about experiences associated with the Stress Badge construct. The qualitative data helped to gain a better understanding of the construct of interest and refine the Stress Badge measure. Longitudinal relationships between the Stress Badge and performance, health, and wellbeing were examined among the second MTurk sample.

In this dissertation, an overall theoretical framework is first provided in chapter two, reviewing major areas of research and theoretical perspectives on organizational stress. This theoretical review includes broad theories that support the detrimental effects of stress, as well as the literature that discusses the potential benefits of stress and individual differences in perceiving stressors. The gap in the literature is further described, where there is a need to understand the unique measure of stressors experienced as honorable. In chapter three, the development of each sub-dimension is discussed in more detail, along with a review of more established, related constructs in developing a nomological network. Hypotheses are then presented regarding relationships between the second order construct and outcome variables, based on the

theoretical perspectives and links to existing constructs. The external component of Stress-Related Impression Management will be discussed in chapter four, along with moderation hypotheses. Lastly, methods and results are presented in chapters five and six, followed by the discussion in chapter seven.

CHAPTER TWO

THEORETICAL FRAMEWORK AND RESEARCH GAPS

In reviewing research on workplace stress, it is important to clarify terminology that is used by the majority of organizational stress researchers. The term stress typically refers to the overall process of the body responding to an environmental or psychosocial demand (Cooper, Dewe, & O’Driscoll, 2001). Stressors are considered to be events or demands that elicit the stress response, while strain is considered the outcome of adapting to the stressor. Strain can be experienced as emotional, physical, and cognitive impairments (Cooper et al., 2001). In the review of the organizational stress literature, appropriate terminology will be applied. As noted in the introduction, high amounts of stressors were operationalized in the Stress Badge measure in terms of a high workload, as this was believed to be most accessible and clear to participants (e.g., “I admire people with a high workload” vs. “I admire people who experience a lot of stressors [or stress]”).

In its current state, the organizational stress literature has addressed several major concerns and questions. Theories have been developed to explain why stressors may negatively impact one’s health and wellbeing, both on physiological (e.g., Allostatic load framework, McEwen, 1998) and more general conceptual levels (e.g., Conservation of Resources, Hobfoll, 1989). Studies have further differentiated when stressors may actually result in experienced strain based on one’s appraisal of a stressor (Lazarus, 1966), or whether the effects would be attenuated by a more positive appraisal (e.g., LePine et al. 2007). Resources to cope with stressors or sufficient recovery from work demands have also been discussed as buffers of the effects of stressors (e.g., Demerouti,

Bakker, Nachreiner, & Schaufeli, 2001; Sonnentag & Fritz, 2007). Finally, in recent years, studies have also examined whether one can develop a personal mindset toward stress as either debilitating or performance enhancing (Crum et al., 2013).

While the literature on work stress has investigated many important topics, there seems to be a gap in understanding the social-cognitive and interpersonal dynamics of the experience of stressors. Studies have considered the personal dispositions of an employee facing a given stressor (e.g., challenge/threat appraisal), yet no studies to the author's knowledge have sought to integrate personal beliefs and social beliefs about the experience of a high amount of stressors. In considering the interpersonal dynamics of stressors, it is clear in everyday interactions that many individuals use their level of stressors to communicate their hard work, level of busyness, or even their worth. Further, individuals may learn from their environment that stressors are indicators of success and internalize this mindset. While this phenomenon is evident in interactions, the media, and even popular culture articles, it has not received research attention. The major proposition investigated in this study is that an individual's personal views of handling high amounts of stress, combined with perceptions of how others view high amounts of stressors, can result in a disposition where stress is considered a "badge of honor". The key dimensions being assessed to capture this disposition are described further in chapter three.

To place the Stress Badge measure in the context of the organizational stress literature, several theoretical frameworks are briefly reviewed. The review examines core questions concerning the ways in which stress can be enhancing or debilitating in terms of performance and employee health and wellbeing. These conceptualizations are

discussed through more general models that are intended to capture responses to particular stressors (e.g., demanding events) in a more situational approach. Then the review is expanded to discuss individual perceptions of stressors in general through a discussion of stress mindsets and an extension to the proposed Stress Badge construct.

Theoretical Perspectives on the Effects of Stressors

While potential benefits of stressors have been acknowledged, there is a predominant concern for the negative outcomes of regular stressors, particularly when stressors and strain are experienced over a long period of time. The allostatic load framework (McEwen, 1998) has been used to discuss the physical and psychological burden of stressors. This model describes biological responses associated with experiencing stress, including a psychological response, physiological changes in the body, and psychosomatic outcomes (e.g., interruptions in sleep, headaches, fatigue). When multiple bodily systems are activated in response to a stressor, it can induce wear and tear on the body in trying to bring the systems back into homeostasis (i.e., allostasis; McEwen, 1998), particularly when the response is active too often, too long, or does not shut down when the stressor is removed. More immediate responses to stressors (in attempts to adapt), over time, can create greater burdens and cause consistent impairments to bodily systems, like the immune system or cardiovascular system, and ultimately outcomes of more serious illnesses and disorders (Ganster & Rosen, 2013; McEwen, 1998).

In a more general sense, the Conservation of Resources (COR) Model (Hobfoll, 1989) discusses the experience of stress as one of resource depletion. COR posits that

individuals need resources in order to cope with daily demands. Hobfoll (1989) proposes, as the major components of his model, that individuals strive to retain, protect, and accumulate resources. Resources can include objects, personal characteristics, conditions, or energy, which are valuable in facilitating the acquisition of desirable outcomes. Strain is experienced when an individual experiences a loss of resources or perceives a threat that resources may be lost. Further, not being able to gain additional resources can result in strain. The COR model has been shown to be a useful framework in understanding organizational stress phenomenon, including burnout, work-family conflict, and workplace recovery (Barnett et al., 2012; Hobfoll & Freedy, 1993; Sonnentag, 2001).

Given the potential effects discussed in the allostatic load model and more generally in the COR model, it can be assumed that a persistent, high level of work-related stress can be detrimental to employee health and wellbeing. In fact, Ganster and Rosen (2013) reviewed multidisciplinary research using the allostatic load framework, finding evidence that work stressors were associated with allostatic load indicators. These relationships were most pronounced when indicators were self-report, psychological measures; however, there was also support for more immediate (e.g., self-report health symptoms, cortisol levels) and distal (e.g., cardiovascular disease) physical health outcomes. A core concern in the present study is the physical and psychological burden that may accrue if an employee has a mindset where they may personally feel (or think others feel) that they are hardworking, successful, or impressive when under high amounts of stressors.

The connection between excessive demands and health outcomes is a primary concern for those who feel a high amount of stressors is impressive. Moreover, a concern with acquiring sufficient resources to cope with stressors may be exceptionally relevant to the present study. COR suggests that an individual's reaction to a high amount of stressors should be to seek out resources to reduce the experienced strain. However, perceiving the experience of a high amount of stressors and, presumably, the associated strain as normative, and potentially positive, may further exacerbate health consequences of strain if individuals accept increased stressors without seeking additional resources. A negative cycle may persist if individuals have few resources to handle the increased levels of stressors.

Of particular importance to the Stress Badge construct, psychological detachment and disengagement from work are noted to be important resources in recovering from work stress and decreasing fatigue (e.g., Sonnentag, Arbeus, Mahn, & Fritz, 2014; Sonnentag & Bayer, 2005). If individuals feel that high amounts of stressors are impressive and experience remorse for taking time to relax, it is unlikely that they will engage in recovery activities, thus missing valuable resources that could be used to reduce the impact of demands on wellbeing.

As another resource consideration, it has long been reported that social support can serve as a resource that reduces the impact of stressors on health and wellbeing (e.g., Cohen & Wills, 1985; Demerouti et al., 2001; House, 1981). However, if individuals feel that high stressors are normal, they may be reluctant to confide in others to elicit emotional support. Further, if individuals engage in excessive Stress-Related Social

Comparison or even Stress-Related Impression Management, there is potential that support sources may not be as helpful if individual behaviors have damaged the quality of social relationships. The combination of these factors associated with the Stress Badge construct may result in problematic outcomes, where individuals do not have adequate resources and do not replenish necessary resources to cope with the high amount of stressors that they desire in order to feel successful.

Individual Stress Appraisals and Stress Mindsets

While COR theory and the allostatic load framework focus on the mechanism by which stressors at work can result in strain and negative health outcomes, other theories focus on an individual's appraisal of a stressor as key to whether or not an individual has a negative response. These theories are critical in better understanding individual differences that may play an important role in the stress process. Lazarus' (1966) transactional model is a dominant theory that incorporates individual appraisals of stressors, where stress is said to be a function of an environmental event and an individual's appraisal of that event. An individual's appraisal includes an assessment of whether or not the particular stimulus is threatening (i.e., primary appraisal) and if the individual feels they have the means to cope with the stimulus, if it is appraised as threatening (i.e., secondary appraisal). In this model, it is only when a demand is acknowledged as a demand that is threatening, that the body responds to the stressor.

As a common appraisal framework, some researchers have distinguished between challenge and hindrance stressors. Challenge stressors are those that can promote growth or facilitate potential gain (e.g., time pressure, high workload), while hindrance stressors

are more clearly constraining, keeping the individual from achieving a goal (e.g., organizational constraints, inadequate resources; Cavanaugh, Boswell, Roehling, & Bourdreau, 2000). Evidence suggests that employees do make nuanced appraisals of stressors as challenging or threatening, in line with theoretical classifications of challenge or hindrance stressors (Gerich, 2016).

Studies have found that appraising a stressor as a challenge rather than a hindrance can be associated with positive outcomes, such as psychological resilience (Crane & Searle, 2016), employee engagement (Tadić, Bakker, & Oerlemans, 2015), high perceptions of learning (Prem, Ohly, Kubicek, & Korunka, 2016), better subjective health ratings and lower burnout (Gerich, 2016), and a less negative impact on the work-family interface (Wood & Michaelides, 2016). Meta-analytic results further suggest that challenge stressors are associated with higher job satisfaction, commitment, engagement, and job performance, as well as lower turnover, while hindrance stressors demonstrate opposite effects (Crawford et al., 2010; LePine, Podsakoff, & LePine, 2005; Podsakoff, LePine, & LePine, 2007). However, meta-analytic results have also suggested that both challenge and hindrance stressors are related to higher burnout, but the relationship is weaker between challenge stressors and burnout (Crawford et al., 2010). Further, both challenge and hindrance stressors may still be associated with certain workplace safety concerns (Clarke, 2012). Thus, challenge stressors may have a less negative effect on health, and some benefits in terms of worker attitudes and performance. Still, there is not sufficient evidence to fully determine if, despite the described benefits, challenge stressors may exert a long-term negative impact on health.

Beyond appraisals of stressors, recent work has also examined how an individual's perception of stress itself may have important implications. Similar to theories of cognitive appraisal, Crum and colleagues (2013) argued that the effects of stressors could be strongly tied to the way an individual perceives stress overall. They conceptualized a stress mindset as the extent to which an individual perceives stress as enhancing or debilitating in relation to one's performance, health, and wellbeing. Stressors have, in fact, been associated with performance enhancement through factors such as focusing one's attention on the effort needed to overcome a demand or biological responses that can heighten one's attention and effort (e.g., Fay & Sonnentag, 2002; Hancock & Weaver, 2005).

Crum et al. (2013) found that stress-as-enhancing mindsets have positive associations with performance and wellbeing. However, these effects were short-term in nature, with cross-sectional, self-report outcomes. Whether these effects are long lasting is worthy of future research attention. It is important to also note that employees in the study conducted by Crum et al. (2013) were surveyed in the midst of a stressful condition (i.e., downsizing and restructuring). Thus, it would be of interest to know how employees view stress in more typical circumstances. This study by Crum et al., (2013) further raises the consideration of whether an individual who believes that stress is performance-enhancing will seek out additional stressors, structure their schedule in a way that is more stressful, or avoid taking breaks because they feel they work well under pressure. Even if these effects are positive for employee performance, researchers must determine long-term health and wellbeing consequences of putting high demands on oneself.

The conceptualization of the Stress Badge in the present study offers a unique contribution in specifically discussing whether individuals perceive a high amount of stressors as impressive or a means to achievement in general. In relation to the appraisal frameworks, one could hypothesize that those high on the Stress Badge would be more likely to see stressors as a challenge (although, it is still quite plausible that individuals would feel accomplished or proud of working in the presence of hindrance that seem difficult to overcome) and likely to see stressors as enhancing their performance. Thus, there may be some benefits in terms of performance and even some health outcomes if individuals see stressors as impressive and likely as a challenge.

An important consideration is that these appraisal frameworks primarily explain the relationships of specific stressors in relation to outcomes. The current study seeks to determine the potential effects of always assessing stressors as something to master in order to feel and/or appear accomplished. If individuals consistently see stressful circumstances as a challenge to overcome (or simply desire to operate under high amounts of challenge or hindrance stressors), there may be benefits in terms of performance but costs in health and wellbeing (Sonnentag & Frese, 2003).

Summary and Extension

The general literature on stress and theoretical perspectives on the effects of work-related stressors were used to inform the development of the Stress Badge construct. In reviewing the literature, it is apparent that an assessment of individual perceptions of a high amount of stressors is missing. The development of the Stress Badge construct in the present study fills this gap in further understanding how personal

and social perceptions of high stressors may together form a disposition toward stress as a badge of honor. Further defining and better understanding the potential impact of the Stress Badge required reviewing additional areas of research, which highlight potentially debilitating work-related attitudes and individual dispositions. In the following chapter, the related areas of research are discussed in respect to each proposed subscale of the Stress Badge construct. More specific inferences are drawn for how each dimension may share conceptual overlap with existing areas of research, as well as what aspects represent novel contributions, to understand the nomological net in which the Stress Badge measure is connected to prior constructs.

CHAPTER THREE

STRESS BADGE: DEFINING THE PRIMARY DIMENSIONS

The Stress Badge construct was developed in light of evidence that busyness and a high workload are increasingly becoming a societal norm (Gershuny, 2005; Roberts, 2007), yet the organizational stress research literature has not adequately addressed individual perceptions toward experiencing a high amount of stressors. While several lines of research have considered maladaptive views of work, such as desiring to work excessively, striving for unrealistic standards, or feeling a high need to compare oneself to others (del Libano et al., 2010; Gibbons & Buunk, 1999; Hewitt & Flett, 1991), no studies have examined perceptions of a high amount of stressors as honorable or impressive. The current chapter further situates the Stress Badge construct within some of these existing constructs.

In the present study, three major internal dimensions are proposed, which are designed to target the combined personal and socially influenced perceptions of having a high amount of stressors. The first dimension, Stress as Achievement, is intended to focus on one's personal beliefs about what a high amount of workplace stressors signifies. Specifically, does the individual believe that having a high workload, or high amount of stressors, indicates that they are successful or important? The key to the first dimension is that one would feel more positive emotions, such as pride, from having a high workload.

The second dimension, Relaxation Remorse, is intended to capture the complementary perception of relaxation. That is, if a high workload were viewed as desirable, then relaxation would be deemed undesirable. The second dimension assesses

whether individuals experience negative emotions (i.e., guilt, remorse) for engaging in relaxation activities. These constructs are expected to correlate strongly, such that if one feels a strong tie to stressors as necessary to achievement, they likely will also view relaxation as unproductive.

The third dimension, Stress-Related Social Comparison, is designed to capture the interpersonal comparisons associated with one's social understanding or beliefs about stressor levels. While the psychological literature has captured the idea that individuals tend to look to others to gauge the appropriateness or adequacy of their behavior (Festinger, 1954), no studies have considered how individuals may specifically compare their amount of stressors with others. As humans are prone to make comparisons to others, it is likely that these behaviors will also exist when considering one's workload or stressor level. As with the first dimensions, it is expected that if one measures success (at least partially) by their stressor levels and desires to be productive rather than to spend time on relaxing activities, they will likely look to others to determine if their level of stressors is sufficient or even more impressive than those around them.

Combined, these three dimensions seem to comprehensively capture how an individual views the connotations associated with stressor levels, as well as how they seek to compare themselves to others in determining if they are meeting their standards for experienced stressors and/or relaxation. It is expected that these three dimensions will form a second-order factor that captures the personally and socially influenced disposition that makes up the Stress Badge construct. While the second-order construct is expected to carry the variance in relation to key outcomes, each subscale will also be

considered in comparison to closely related constructs in establishing evidence for convergent validity.

The following sections more comprehensively define the three sub-dimensions of the Stress Badge construct and contrast each dimension with related constructs in the existing literature. The overall similarities and contrasts between the Stress Badge and related constructs are summarized in Figure 1. A more thorough summary of the nomological net of expected relationships among the subscales and measures of convergent and discriminant validity, as well as relations between the overall Stress Badge construct and key outcomes is displayed in Figure 2. Following the explanation and reviews associated with the three internal sub-dimensions, hypothesized relationships between the overall Stress Badge construct and performance, health, and wellbeing outcomes are presented. Then the external dimension of Stress-Related Impression Management will be introduced in chapter four.

Stress as Achievement

Stress as Achievement is defined as the perception that high amounts of stressors are a necessary component of success. This dimension is intended to capture beliefs that stressors are not only inevitable, but that experiencing a high amount of stressors makes an individual appear successful and hardworking. As discussed in the theoretical framework, research has shown that there can be benefits of stress in relation to performance. For instance, certain amounts of stress may lead to optimal arousal for performance (inverted-U models; McGrath, 1976; Seyle, 1975), or stressors may be appraised as a challenge to be overcome (Cavanaugh et al., 2000). An individual who

exhibits high Stress as Achievement would likely be accepting of high levels of stress as part of making progress, and may perhaps have high performance because of this disposition. However, this may come at the costs of accepting high levels of stressors that could ultimately damage health and wellbeing.

As briefly mentioned, studies have empirically shown that workers can experience health effects of work stressors (e.g., high blood pressure), even when negative psychological states (e.g., negative affectivity) are not reported (Friedman et al., 2001). Further some occupational characteristics or individual characteristics can be associated with low reports of work stressors when physiological effects of stressors are still present (e.g., Theorell, 1990; Winkelby et al., 1988). Thus, not perceiving stressors as “bad” in some way does not necessarily protect individuals from health consequences. To better develop this dimension, research on workaholism and perfectionism were reviewed. Nuances in the Stress as Achievement dimension of the Stress Badge are also noted, following the review of existing literature.

Workaholism. While workaholism has become a popular topic in the media and popular culture, there remains a rather large discrepancy in defining workaholism in the literature. Some view workaholism as an addictive pattern of behavior (Porter, 1996; Schaufeli, Tarsis, & Baker, 2008) while others consider it a more positive, intense dedication to work (Ng, Sorensen, & Feldman, 2007). Ng et al., (2007) concluded that common elements of the most accepted definitions of workaholism include an internal drive to work beyond what is expected by the organization, potentially at the expense of other life roles.

Workaholism has been contrasted with more positive drives or states, such as work engagement or a passion for one's work. However, workaholism appears to be distinct and exhibit more negative relationships with health and wellbeing outcomes. Specifically, workaholism has been associated with poor health, life satisfaction, and negative emotions that further relate to work-family conflict; alternatively, work engagement is positively associated with wellbeing and positive emotions that are more strongly associated with work-family facilitation (Clark, Michel, Stevens, Howell, & Scruggs, 2014; Shimazu, Schaufeli, Kamiyama, & Kawakami, 2015). In comparison to passion for one's work, workaholism is associated with more obsessive thoughts about work and less satisfaction with work and home domains (Burke & Fiksenbaum, 2009).

Several factors have been indicated as potential antecedents of workaholism. Work-related factors, such as high job demands (e.g., workload, cognitive demands, social stressors) have been associated with higher reports of workaholism (Molino, Bakker, & Ghislieri, 2016). At an individual level, personality traits associated with achievement striving are correlated with workaholism (e.g., Type A personality, perfectionism; Clark, Michel, Zhdanova, Pui, & Baltes, 2014), as are dispositions where individuals closely link their self-esteem to work accomplishments (van Wijhe, Peeters, & Schaufeli, 2014). Workaholism seems to be more strongly predicted by extrinsic or controlled motives (i.e., to please others), rather than intrinsic motivation (van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012; van den Broeck et al., 2011). Further, individual and organizational factors may interact in complex ways to predict workaholism. For instance, Keller et al., (2016) found that both competitive climates and individual

differences in views of their work as a calling were related to workaholism. In particular, there was a stronger relationship between competitive climates and workaholism when individuals had a stronger orientation toward their work as a calling.

Workaholism can be problematic for both individual employee health and organizational outcomes through concerns about health and productivity. Workaholism has been associated with increased mental health symptoms, psychosomatic symptoms, work stress, and burnout (Clark et al., 2014; Ng et al., 2007; Schaufelli, Taris, & van Rhenen, 2008). Workaholism may negatively impact social relationships (Schaufelli et al., 2008), particularly with one's family, as studies have found consistent relationships between workaholism and work-family conflict (Bakker, Demerouti, & Burke, 2009; Piotrowski & Vodanovich, 2006). Such work-family conflict or satisfaction in family relationships may also be felt by family members, with evidence that workaholism has spillover effects to spouse satisfaction (Bakker, Shimazu, Demerouti, Shimada, & Kawakami, 2014; Bakker et al., 2009).

The emotional health of workaholics may be particularly impacted because their compulsion to work deprives them of recovery and relaxation time, further increasing exhaustion and damaging social relationships (Taris, Schaufeli, & Verhoeven, 2005; Ng et al., 2007). In addition, coinciding personality traits may exacerbate workaholic behaviors. For instance, employees high on workaholism and perfectionism have been found to be less likely to delegate tasks to co-workers, which can be problematic when an individual becomes overwhelmed and may need help with work (Spence & Robbins, 1992).

Concerns with workaholism do not only impact an individual's personal life and health, but may also impose costs on an organization. Most studies suggest that workaholism may be negatively related to performance, or not related to performance at all (Birkeland & Buch 2015; Shimazu et al., 2012; Shimzu et al., 2015; Van Beek, Taris, Schaufeli, & Brenninkmeijer, 2014). Workaholism may be indirectly related to lower performance through job strain (Falco et al., 2013). Only one study reported a higher indirect relationship with performance through active coping strategies (Shimazu, Schaufeli, & Taris, 2010). Thus, employees who are "addicted" to work may seem, in some ways, like an asset to an organization; however, research suggests their addiction to work likely does not result in better performance outcomes.

Beyond measures of performance, workaholism may be associated with fewer organizational citizenship behaviors (Birkeland & Buch, 2015), as well as more counterproductive behaviors such as higher absences (Falco et al., 2013). As an especially important concern, workaholism has even been indicated as a risk factor for workplace aggression (Balducci, Cecchin, Fraccaroli, & Schaufeli, 2012). Finally, Molini et al. (2016) found evidence of an indirect relationship between workaholism and intentions to leave one's job, mediated through work-family conflict.

Perfectionism. Perfectionism is a disposition that can impact health and wellbeing through a tendency to strive for excessively high standards and often being overly critical in evaluating oneself (Hewitt & Flett, 1991; Molnar, Sadava, Flett, & Colautti, 2012). Perfectionism can originate both from unrealistic expectations that an

individual believes are imposed by others (socially prescribed), as well as personal expectations that are set oneself (self-oriented; Hewitt & Flett, 1991).

In workplace settings, perfectionism has been associated with higher reports of work-related stressors, more inefficiency on work tasks, and burnout among helping professions (i.e., teachers, healthcare professionals; Childs & Stoeber, 2012). A specific form of perfectionism associated with a need to be successful was associated with reports of depression symptoms and psychological distress among a sample of public-sector employees (Guppy & Weatherstone, 1997). Studies have pointed to detriments to one's self-worth as a mediating mechanism by which perfectionism affects mental health (DiBartolo, Li, & Frost, 2008). Beyond mental health, both self-oriented and socially prescribed perfectionism have been associated with poorer physical health through increasing perceptions of stress (Molnar et al., 2012).

Lab studies have found perfectionism to be associated with superior performance in studies of college students (e.g., Stoeber, Chesterman, & Tarn, 2010). In addition, studies have clarified how varying degrees of perfectionism can relate to performance. For example, Rice, Lopez and Richardson (2013) used latent profile analysis to identify adaptive and maladaptive forms of perfectionism, and compared each to non-perfectionists among students in science and engineering majors. They found that adaptive perfectionism was associated with higher self-efficacy than the other two groups. Further, adaptive perfectionists had higher GPAs than non-perfectionists; however, the two types of perfectionism did not differ in terms of GPA. These findings

appeared to be affected by the context of the science and engineering field, where many of these effects were apparent for women, but not for male students.

Stress as Achievement Distinctions. Based on the available research, it can be concluded that workaholism may be associated with better performance in some situations, though evidence is mixed, but likely takes a toll on employee health, wellbeing, and personal relationships. Similarly, perfectionism may be associated with superior performance, but it may be at the cost of individual health and wellbeing. Workaholism and perfectionism are expected to share some conceptual overlap with Stress as Achievement, in that those high on each of these dimensions will likely take on large amounts of work and experience high amounts of workplace stressors. Similar to the discussed relationships with workaholism and perfectionism, viewing stress as impressive may result in potential benefits for performance, but detriments to health.

The Stress as Achievement dimension, however, consists of several novel characteristics that distinguish it from workaholism and perfectionism. Rather than a compulsion to complete perfect work or to work continuously, Stress as Achievement is a desire and acceptance of high levels of stressors. This dimension differs from workaholism, in that workaholism is considered to be more atypical. The perception of Stress as Achievement is proposed to be more widespread among employed populations. Rather than being abnormal, it is a more normative appraisal that high amounts of stressors are necessary to success and can be viewed as impressive. Stress as Achievement may share some conceptual overlap with perfectionism, in that an individual high in both characteristics may have strong desires to complete impressive

work. However, Stress as Achievement is proposed to have a unique focus on viewing the experience of high stressors as impressive, rather than perfect work as impressive. Thus, the sense of pride in work would be more strongly associated with taking on many projects or responsibilities, resulting in high levels of stressors, where the work completed may or may not be desired to be perfect.

In addition, the mechanisms by which workaholism, perfectionism, and Stress as Achievement exert negative effects are hypothesized may be different. For instance, perfectionism has been discussed as exerting influence through harm to self-worth (e.g., DiBartolo et al., 2008). Workaholism has been noted to exert negative effects through increased strain and an inability to recover from work (Falco et al., 2013; Ng et al., 2007; Taris et al., 2005). Similar to workaholism, but not perfectionism, those who view stress as a means to achievement may experience negative health outcomes because they take on an inappropriate amount of activities or tasks, for which they do not have sufficient resources. In the present study, I focused in particular on perceived stress and psychological detachment/relaxation experiences as mediating mechanisms of the overall Stress Badge construct.

In sum, the following hypothesis was proposed to establish evidence of convergent validity with related attitudes that have a basis in desiring excess (either in quality of work or amount of work). It was expected that Stress as Achievement would be moderately correlated with workaholism and perfectionism, with Stress as Achievement still remaining unique and not overlapping entirely with either construct (i.e., not exhibiting a very high correlation). In addition, it was expected that discriminant validity

would be evidenced by low correlations with social desirability (Crowne & Marlowe, 1960) and a measure of general positive and negative affect (Watson, Clark, & Tellegen, 1988). That is, responses to the subscale would not just be a product of socially desirable responding or an individual's normative emotional experiences.

Hypothesis 1a: Stress as Achievement will be moderately correlated with workaholism and perfectionism as evidence of convergent validity.

Hypothesis 1b: Stress as Achievement will exhibit low correlations with social desirability, positive affect, and negative affect as evidence of discriminant validity.

Relaxation Remorse

The second dimension of the proposed Stress Badge construct is Relaxation Remorse. Relaxation Remorse is when an individual feels guilty for taking a break from work tasks, or feels that he or she should be continuing activity rather than resting. Feeling Relaxation Remorse may apply to both taking breaks during the workday and recovering outside of working time. The idea of Relaxation Remorse is similar to ideas of workaholism, where individuals have the desire to work excessively and compulsively and may sacrifice other desirable activities in order to do so (Ng et al., 2007). However, Schaufeli, Taris, and Baker (2008) noted that workaholism is addictive in nature and involves a behavioral response, where individuals have a drive to work that cannot be resisted. Similar to Stress as Achievement, the concept of Relaxation Remorse is likely to be more widespread.

Individuals high on the Relaxation Remorse dimension may not necessarily feel an addictive compulsion to work that they must act on, but have an underlying perception that relaxation time is unproductive and other activities are more valuable. For example, while relaxing, individuals may feel strong concern or sense of guilt for what work tasks they are not accomplishing, but do not necessarily engage in those tasks as would be expected with workaholism. Though they do not abandon relaxation efforts, any recovery time may be low quality because of the underlying belief that productive activities are more important.

In comparing Relaxation Remorse to existing constructs, research on relaxation and recovery strategies, and psychological detachment in particular, will be reviewed. These constructs are often examined together into the study of recovery experiences. In the present review I will address general research on relaxation and recovery, and then discuss psychological detachment in more detail. Research on psychological detachment is discussed in more detail, beyond the other types of recovery strategies, because of its strong relationships to wellbeing and conceptual relations to Relaxation Remorse.

Relaxation and recovery. Relaxation and recovery have been studied in various forms in organizational research. Studies of recovery strategies have focused on several types of breaks, some longer such as vacations or weekends, and some shorter, such as after the workday or breaks during work (Fritz et al., 2013). Vacations have been found to have benefits in employee health and wellbeing; however, these benefits are often short lived (de Bloom et al., 2010; de Bloom, Geurts, & Kompier, 2013). The benefits of vacation, in terms of performance and wellbeing, can also diminish if employees have

negative thoughts about work while on vacation or a high workload upon their return (Fritz & Sonnentag, 2006).

Research on recovery after work or during the weekend has focused on different leisure activities. Sonnentag (2001) examined several possible leisure activities that were positively related to situational wellbeing, including social activities (e.g., spending time with friends), physical activities (e.g., exercise, sports), and low effort activities (e.g., watching television, reading a magazine) in a daily diary study. Alternatively, engaging in work-related activities was associated with lower wellbeing at the end of the day. Studies have also found that not being able to reflect on positive work experiences, having non-work hassles, and a lack of social activities over the weekend can be associated with burnout and poor wellbeing (Fritz & Sonnentag, 2005). These findings suggest that both active and passive recovery strategies may have benefits; however, engaging in work-related activities or experiencing non-work hassles are associated with negative outcomes.

Further studies noted characteristics of activities that promote recovery, rather than focusing on the activity itself. As Fritz et al. (2013) summarized, individuals can engage in recovery activities without having true recovery experiences. Sonnentag and Fritz (2007) found that recovery experiences involving psychological detachment (e.g., not thinking about work), mastery (e.g., learning a new skill), control (i.e., over one's schedule), and relaxation are associated with benefits in terms of health and wellbeing outcomes.

Relevant to Relaxation Remorse, recent research provides additional evidence that individuals may not sufficiently enjoy opportunities for recovery outside of work. Wang and colleagues (2016) conducted a twitter analysis and found an interesting trend in work-related tweets, with a dip in negative work-related tweets on Fridays, but an increase on Saturdays and Sundays. Thus, individuals may have an early relief in the weekend from work-related stress, but begin being concerned about work-related stressors during the latter part of their weekend. There are limitations to making firm conclusions from these analyses of social media; however, the overall trends could have interesting implications. For example, these trends raise concerns that employees' dread for the start of the workweek, or potentially concerns that they should be engaging in productive activity over the weekend, may take away from recovery.

Relaxation and recovery efforts may be particularly important for individuals who work jobs with high demands, who can be susceptible to experiencing burnout. A study of nurses found that when nurses engaged in high relaxation activities (e.g., taking breaks, not following a strict schedule, learning new things) during a mid-week or weekend break, they returned to work feeling less emotional exhaustion and more vigor (Drach-Zahavy & Marzuq, 2013). Individual differences, such as personal mindfulness, have been shown to enhance the benefits of relaxation in terms of emotional exhaustion and vigor (Marzuq & Drach-Zahavy, 2012). In comparison, individual differences in experiencing Relaxation Remorse may inhibit the effectiveness of any time spent on recovery or relaxing activities.

As a final consideration, recovery experiences have also been studied more short-term. Short breaks during the workday can be associated with increases in attention and decreases in fatigue (e.g., Fritz et al., 2010; Lee, Williams, Sargent, Williams, & Johnson, 2015). Lunch breaks have also been found to be beneficial in reducing fatigue, particularly when an employee has autonomy over how breaks are used (Trogakos, Hideg, Cheng, & Beal, 2014). Studies have also shown that incorporating intentional relaxation activities into lunch breaks can be associated with actual decreases in cortisol levels (Krajewski, Sauerland, & Weiland, 2011). As another form of intentional relaxation, short post-lunch naps have potential to increase worker alertness (Takahashi et al., 2004). As with other recovery strategies, lunch breaks seem to be most beneficial when employees disengage from their work during that time (Fritz et al., 2013).

Researchers have also considered micro-breaks, or taking small breaks throughout the day, as helpful strategies. Studies have found that there is either no harm to performance or benefits in performance from taking short breaks throughout the day (e.g., Dababneh, Swanson, & Shell, 2001). However, there may be differences in recovery based on how these breaks are used. For instance, Fritz, Lam, and Spreitzer (2011) found that common types of break activities, like sending personal emails or online shopping, were actually associated with lower energy during the workday. Strategies such as learning something new or reflecting on meaning in one's work were more effective in regaining energy.

These relationships are complex, such that some cognitive work break strategies that are typically viewed favorably (e.g., reading, learning activities) have been found to

exacerbate the impact of work stress on negative affect (Kim, Park, & Niu, 2016). Further, the relationships may change over time. For example, work-related micro-breaks (e.g., goal setting) have been associated with more fatigue short-term, but more long-term vitality when comparing between person differences (Zacher, Brailsford, & Parker, 2014). Therefore, the benefits associated with certain activities may depend on the demands involved in work.

As an important consideration, it is central to the idea of Relaxation Remorse that individuals want to maintain productive efforts. While most studies reviewed have focused on health and wellbeing benefits of recovery activities, it is important to also consider the effects of recovery on job performance. As noted, breaks during the workday can result in no harm or performance benefits (Dababneh et al., 2001). Fritz and Sonnentag (2005) found that weekend recovery activities that did not allow for social activities or that involved non-work hassles were associated with lower task performance at the start of the work week. Further, employees who experienced non-work hassles or who did not have positive reflections on their work over the weekend reported lower pursuit of learning in their work at the start of the week. Binnewies, Sonnentag, and Mojza, (2010) also found that fluctuations in recovery over the weekend, in terms of opportunities for psychological disengagement, control, mastery, and relaxation, were associated with fluctuations in job performance during the course of the following work week. Thus, although breaks and time spent on relaxation and recovery may seem unproductive, they may ultimately result in more benefits in work performance.

Psychological Detachment. An important point from the review of studies on relaxation and recovery is that regardless of the length of the break, recovery is likely only achieved if a break involves the absence of work-related demands (Fritz et al., 2013). Optimal recovery experiences oftentimes involve psychological detachment. Detachment can be defined as being able to disconnect from a work situation, rather than dwelling or ruminating on work activities (Hulsheger et al., 2014). True detachment is characterized by not being involved in any work-related tasks, including emails and phone calls, during non-work hours (Sonnentag & Fritz, 2007).

Of the different recovery strategies studied by Sonnentag and Fritz (2007), psychological detachment exhibited the strongest relationship with wellbeing. Employees who cannot detach from work, particularly those under high time pressure and who do not engage in leisure activities, are more likely to experience exhaustion (Sonnentag et al., 2010; 2014). A lack of detachment has also been associated with decreases in performance, proactive behavior, and life satisfaction (Fritz et al., 2010). Similar to psychological detachment, a lack of detachment or ruminating on work-related tasks has been associated with negative health outcomes, such as harm to sleep quality and even nocturnal heart rate variability (Vahle-Hinz et al., 2005). An inability to withdraw from work has further been found to mediate the relationship between job demands and next day recovery, and inability to withdraw was also directly related to fatigue (von Thiele Schwarz, 2011).

A high workload has been associated with a lower ability to detach from one's work (Sonnentag & Bayer, 2005). This influence of workload may be a particular

concern associated with the Stress Badge. Individuals who see high levels of stress as impressive and time for relaxation as unproductive are unlikely to disengage from their work in order to experience benefits of recovery. Further, these individuals may seek out a high workload in order to seem impressive, thus limiting the recovery potential for any time they do take to try to disengage.

While psychological detachment seems to have a clearly positive benefit on wellbeing outcomes (Sonnentag & Fritz, 2007; Fritz, et al., 2011), relationships with performance may be more complex. Fritz et al. (2011) found evidence for a curvilinear relationship with psychological disengagement and co-worker rated work performance. In particular, moderate levels of workplace detachment were associated with the highest job performance, while very high levels of detachment were associated with somewhat lower performance. Fritz et al. (2011) proposed this may be because workers that disengage too much may have trouble getting back to a “working mode” when returning to work.

The findings of these studies have interesting implications for Relaxation Remorse. In particular, Relaxation Remorse and the Stress Badge construct are expected to operate similarly, in that employees with moderate levels of Relaxation Remorse may have the best performance. Employees who feel no remorse may be more unproductive; however, employees with excessive remorse may have work detriments associated with low energy and wellbeing. These potential relationships are discussed more with the study hypotheses.

Relaxation Remorse Distinctions. In sum, the Relaxation Remorse dimension shares conceptual overlap with the constructs of relaxation and recovery; however, it offers a unique contribution in assessing a general mindset toward these activities (i.e., as unnecessary or unproductive) as a component of the Stress Badge. Further, this sub-dimension may represent a key individual difference that could be a barrier to truly replenishing recovery experiences. Any interventions to promote workplace recovery or non-work recovery experiences may be ineffective if individuals have an underlying belief that such activities are not essential.

Relaxation Remorse may exert negative effects through a lack of rejuvenating breaks during or after work. For instance, employees may experience this when trying to recover during non-work hours, if they have spare time they could use to get ahead on a work project. Individuals high on Relaxation Remorse may also be reluctant to take breaks during work because they feel that their time should be spent on productive activity. Further, when breaks are taken, these employees may choose strategies that are not as replenishing (e.g., other productive tasks such as responding to emails, dealing with non-work hassles) in order to maintain feelings of productivity. While these types of strategies may seem like an effective use of time, it may be at the cost of health and wellbeing.

In sum, the following hypothesis was proposed to establish evidence of convergent validity in relation to workaholism and the activities of experiencing psychological detachment and relaxation activities. It was expected that Relaxation Remorse would be moderately and positively related to workaholism, such that those

high on Relaxation Remorse likely exhibit more behaviors associated with working excessively or compulsively. In addition Relaxation Remorse would be moderately and negatively correlated with relaxation activities and psychological detachment, where those high on Relaxation Remorse would be expected to be less likely to have such recovery experiences. Still, Relaxation Remorse was expected to be unique and not overlapping entirely with either construct (i.e., not exhibiting a very high correlation). Relaxation Remorse was also hypothesized to exhibit low correlations with social desirability, positive affect, and negative affect as evidence of discriminant validity.

Hypothesis 2a: Relaxation Remorse will be moderately and positively correlated with workaholism, and will be moderately and negatively correlated with psychological detachment and relaxation activities as evidence for convergent validity.

Hypothesis 2b: Relaxation Remorse will exhibit low correlations with social desirability, positive affect, and negative affect as evidence of discriminant validity.

Stress-Related Social Comparison

The third dimension of the Stress Badge construct, social comparison, is when an individual habitually compares themselves to others in order to determine the amount of stressors one should be experiencing. Individuals who are high in social comparison will be highly aware of the levels of stressors of those around them and adjust their workload accordingly. For example, individuals may look for cues in conversations where friends, co-workers, or family members describe the level of stressors they are experiencing.

Social comparison is a construct that has been examined extensively in social psychology, where researchers have posited that social comparisons are a fundamental behavior, where individuals seek information to learn about and evaluate themselves (Festinger, 1954). Individuals may compare themselves to others for a variety of reasons, such as when they experience uncertainty about their own abilities, knowledge, or other aspects of their life (Butzer & Kuiper, 2006). In general, individuals will choose to compare themselves to others that are similar to them in the attribute of interest (e.g., similar attitudes, background, or ability; Festinger, 1954). These comparisons may be used to gain knowledge about oneself (self-knowledge), and to confirm one's level of abilities in comparison to peers (self-validation; Goethals & Darley, 1987). In particular, individuals may compare themselves to others as a form of motivation for better performance (Lockwood, Jordan, & Kunda, 2002). In both cases individuals can make upward comparisons (someone superior to them) or downward (someone inferior to them). These comparisons can ultimately be motivating (e.g., to be like the superior individual, or that you are/can be better than the inferior person) or can be debilitating (e.g., feeling that others are far superior; Wood, 1989).

Of interest to the present study are the potential negative and stressful consequences of social comparison. Individuals who experience more uncertainty and are prone to look to social comparisons for information to evaluate their own abilities may experience increased depression and anxiety (Butzer & Kupier, 2006). Further, other dispositions, such as self-esteem, perceived control, and levels of satisfaction can impact how social comparisons affect individual reactions to stress and coping strategies (Buunk

et al., 1990). In relation to job attitudes, more upward social comparisons can be associated with lower job satisfaction and affective commitment, while downward comparisons are associated with higher job satisfaction and commitment (Brown, Ferris, Heller, & Keeping, 2007).

In work settings, social comparison processes have been used to understand many aspects of organizational environments, such as perceptions of justice, performance ratings, emotions, stress, and leadership (Greenberg, Ashton-James, Ashkanasy, 2007). Individuals with low core self-evaluations (i.e., self-esteem, generalized self-efficacy, locus of control, and emotional stability), more role ambiguity, higher task autonomy, and a desire for high performance have been found to engage in more work-related social comparisons (Brown et al., 2007; Shin & Sohn, 2015). The effects of social comparisons may be complex. Thus, some of these complexities are discussed in several domains of organizational research.

Social comparisons are described as a key element in determining fairness in organizational situations (e.g., Equity Theory; Adams, 1965). Social comparisons have also been found to relate to forms of perceived fairness of outcomes, such as pay satisfaction (Harris, Anseel, & Lievens, 2008). Perceptions of distributive justice have also been found to explain relationships between social comparisons and work attitudes, such as lower job satisfaction (Shin & Sohn, 2015). Such comparisons in determining fairness may also be influenced by one's relationship with the comparison other. For instance, Sherf and Venkataramani (2015) conducted a scenario study and found that the quality of a relationship between co-workers impacts perceptions of fairness of outcomes.

For instance, an unfavorable comparison (a co-worker receiving a better outcome) was assessed as less negative when the employee had a positive tie to the comparison other.

Social comparisons are also influential for group dynamics. Social comparisons (both upward and downward) can harm trust within work groups (Dunn, Ruedy, & Schweitzer, 2012; Molleman, Nauta, & Buunk, 2007). Various aspects of social comparisons can also harm group dynamics and group-member experiences. For example, Scott, Tams, Schippers, and Lee (2014) integrated work on social exclusion and social comparison to understand the experience of employees who are excluded because they felt that others make upward comparisons to them. They found evidence that individuals who felt excluded, and perceived that this was the result of others' envy of themselves, experienced detriments to their wellbeing and work-related attitudes. Other studies have similarly supported the proposition that high performers in organizations can be targets of victimization, likely as a result of group member envy (Kim & Glomb, 2014). These dynamics may be especially important to understanding the Stress Badge construct, where individuals who strive for excessive amounts of stressors may feel impressive and "envied" by co-workers, but also feel isolating effects as described in prior studies.

As previously mentioned, social psychologists have established that excessive comparisons can be detrimental to one's mental health (Butzer & Kupier, 2006). In terms of occupational health, some instances of social comparison have been associated with employee burnout. Upward comparisons to individuals who feel like competitors, or a downward comparison to those one identifies with, were both associated with burnout

among a sample of teachers (Carmona, Buunk, Peiro, Rodriguez, & Bravo, 2006). Buunk, Ybema, Gibbons, and Ipenburg (2001) also found that burnout itself can be associated with more negative reactions to upward comparisons and making more frequent downward comparisons.

Finally, excessive social comparison can be a threat to organizational success. For instance, social comparison bias is discussed as the tendency for employees to not recommend others who may be a “threat” to themselves (e.g., they have similar or better abilities; Garcia, Song, & Tesser, 2010). These tendencies to feel threatened may be especially prominent among employees who occupy lower positions in the organization (Jia, Lu, Xie, & Huang, 2016). Similar competitive dynamics may also be present among employees who seek out high levels of responsibility and stressors in order to appear impressive. Such employees may become concerned if others appear equally or more impressive.

While some studies have suggested that social comparisons can result in stressful situations (e.g., perceptions of unfairness), no research to our knowledge has considered how employees may compare their levels of stressors to other workers. Further, the impact of these comparisons is not known. In the context of the Stress Badge, this may be an important consideration that those who view high levels of stressors as impressive may also look to others to gain knowledge or validate their personal levels of stressors.

Stress-Related Social Comparison distinctions. In the present study, social comparisons in general were expected to share conceptual overlap with Stress-Related Social Comparison. However, adding the specific target of social comparisons associated

with stressor levels may be an informative piece of information for promoting positive work environments and employee health. Furthermore, while social comparisons in general may be a motivational tool, social comparisons in terms of stressor levels may have a similar effect on performance but a far more negative effect on health and wellbeing outcomes.

Social comparisons regarding stressor levels may have negative implications for several reasons. First, thresholds for acceptable stressor levels may increase if individuals compare themselves to others who experience high levels of stressors. This potential for a high threshold could be a concern among highly stressed colleagues, as well as if individuals compare themselves to common depictions of success in the media. For example, many films depict rising executives or those excelling in their careers as having endless to-do-lists and packed schedules. The climate of a work group may also exacerbate the negative effects of Stress-Related Social Comparison. For example, competitive climates are those where employees feel that their rewards from their organization depend on comparisons to other workers (Brown, Cron, & Slocum, 1998). Stress-Related Social Comparison may be especially concerning if a competitive climate exists, where the referent to be perceived as impressive is the amount of stressors an employee can handle.

Second, individuals may be less likely to seek help for physical, emotional, or work-related problems if they perceive that others with equal levels of stressors do not need help. Among general population samples, comparisons to others on perceived levels of distress have been found to predict seeking help for a mental health problem

(Mojtabai, 2008). Further, Bamberger (2009) proposed that organizational norms influence how employees feel about asking for help for work-related problems, as well as seeking help for mental health problems. In the same way that employees who do not want to feel threatened by employees with similar or better skill sets (e.g., Jia et al., 2016), employees who feel that it is impressive to exhibit stress may feel threatened if they seek out help when the amount of stressors they experience is high.

Lastly, Sonnentag (2001) noted that social activities may be effective recovery strategies because they allow for social support and spending resources on activities that are not focused on task accomplishment. If an individual engages in excessive social comparisons, particularly if it is in relation to work-related stressors, they may not achieve these same benefits from spending time with close others. Rather, individuals may be more focused on the tasks that others are completing and considering how their stressor levels compare.

In sum, the following hypothesis was proposed to establish evidence of convergent validity in relation to general social comparisons. It was expected that those who engage in general social comparisons would be more likely to engage in Stress-Related Social Comparison. Still, Stress-Related Social Comparison was expected to be unique and not redundant (i.e., not exhibiting a very high correlation). These stress-related comparisons should be unique because of the targeted nature of the items, referencing a comparison of stressor levels. As with the other two subscales, it was expected that Stress-Related Social Comparison would exhibit low correlations with

measures of social desirability, positive affect, and negative affect as evidence of discriminant validity.

Hypothesis 3a: Stress-Related Social Comparison will be moderately and positively correlated with general social comparison tendencies as evidence of convergent validity.

Hypothesis 3b: Stress-Related Social Comparison will exhibit low correlations with social desirability, positive affect, and negative affect as evidence of discriminant validity.

The Stress Badge as a Higher-Order Construct

As previously discussed, it was expected that the three internal dimensions provided would form a second order construct, which represents the Stress Badge. I proposed this to be an effective way to model the subscales, because the subscales are designed to together assess the underlying quality of the Stress Badge, that was expected to be best represented by the whole of the subscales rather than the individual components (Carver, 1989). Whether a second-order construct exists was determined by: 1) examining the correlations among the subscales in comparison to correlations of items within the subscales, and 2) modeling the second order factor in analyses of predictive validity to see if the second-order factor carries the variance from the dimensions to the outcomes. All predictive validity hypotheses were tested using the second order factor. Models examined whether there were residual effects of the subscales in relation to the outcome variables, rather than all effects being accounted for by the second-order factor.

For simplicity, hypotheses of predictive relationships and incremental relationships are proposed using the higher-order Stress Badge construct. If there were evidence that the second-order factor was not supported and that direct paths should be modeled between the subscales and outcomes, analyses would have been conducted at the level of the subscale. In addition, exploratory analyses examining whether the sub-dimensions may result in a particular sequence rather than forming a second-order construct were considered if the second-order construct did not fit the data.

Stability of the Stress Badge Construct

Prior to these descriptions, it is also important to note that the stress-badge was proposed to be a relatively stable trait or disposition. Specifically, a measure that is considered a trait exhibits stability over time, while a state can be expected to fluctuate over time. Correlating responses on the Stress Badge measure at two time points empirically tested the proposition that the Stress Badge can be considered to be a more stable trait.

Hypothesis 4: Ratings of the Stress Badge dimensions assessed approximately two months apart in a longitudinal sample will be highly correlated, providing evidence of stability.

Predictive Validity: Hypothesized Direct Effects of the Stress Badge

Several outcomes were considered in the present study. First, job performance was considered as a key outcome, of primary concern for organizations. Second, health and wellbeing outcomes were considered, including measures of physical and mental health and indicators of social health assessed through work-family conflict and

relationship quality. The hypothesized direct effects that were tested, with the Stress Badge modeled as a second-order factor, are summarized in Figure 4.

Job Performance. Similar to inverted-U models of stress, the Stress Badge was expected to exhibit a curvilinear relationship with ratings of job performance. Inverted-U models have received mixed support in the organizational stress literature (Muse, Harris, & Field, 2003). However, the Stress Badge may be a specific stress-related attitude that exhibits this pattern with performance. Specifically, this attitude may be adaptive at moderate levels, where individuals use stress as a tool (similar to conceptualizations of stress as a challenge); however, this effect is expected to diminish at higher levels. Those with high levels on the Stress Badge construct may have lower performance as a result of insufficient resources to cope with high levels of stressors that may be perceived as normal or acceptable.

These potential relationships are further supported by examples of inconsistencies in relationships between maladaptive attitudes such as workaholism in relation to work performance (e.g., Birkeland & Buch 2015; Shimazu et al., 2010; 2012; 2015). Because there are inconsistent effects on job performance, it is worth considering whether non-linear relationships exist with the work-related attitude of the Stress Badge and performance. Further, studies have noted the potential for curvilinear relationships between psychological detachment and performance (Fritz et al., 2011). As the Stress Badge may be closely aligned with a lack of psychological detachment, this potentially adaptive, but potentially debilitating attitude is expected to exhibit a similar curvilinear relationship.

In addition, it was expected that the Stress Badge would explain incremental variance in performance beyond the measures of convergent validity previously discussed (i.e., workaholism, perfectionism, relaxation activities, psychological detachment, and general social comparisons). Incremental effects were expected because of the unique nature of the Stress Badge measure, specifically focusing on taking on a high amount of stressors. These effects should be unique from the more general dispositions, activities, and comparison tendencies.

Hypothesis 5a: The Stress Badge will have a curvilinear relationship with job performance, such that individuals with low and high levels of the Stress Badge will have lower performance, while those endorsing moderate levels will exhibit better performance.

Hypothesis 5b: The Stress Badge will explain incremental variance in performance, beyond the effects of measures of workaholism, perfectionism, relaxation activities, psychological detachment, and general social comparisons.

Physical and Mental Health. As researchers have noted, there are likely tradeoffs when working under high stress in terms of performance and health (Sonnentag & Frese, 2003). Stress may promote high performance, but it could be at the cost of employee health. While the Stress Badge may be adaptive to a certain extent in terms of performance, it was expected that it would exhibit a negative linear relationship with physical and mental health. A negative, linear relationship was expected for several reasons. Stressors in general have been shown to take a negative toll on mental and physical health (De Lange et al., 2008; Nixon et al., 2011). Individuals high on the Stress

Badge are likely to experience a high number of stressors, without making sufficient efforts to reduce such stressors, if they perceive that these experiences are impressive. In addition, the related constructs discussed, such as workaholism, perfectionism, a lack of recovery, and social comparisons have been associated with indicators of poor health (e.g., Butzer & Kupier, 2006; Clark et al., 2014; DiBartolo et al., 2008; Ng et al., 2007; Schaufelli et al., 2008; Vahle-Hinz et al., 2005).

Furthermore, using COR theory (Hobfoll, 1989) as a framework, the Stress Badge may exert negative effects on health through creating high levels of stressors that deplete individual resources. Because individuals high on the Stress Badge perceive stressors as impressive they may generally accept consistently high amounts of work stressors. In addition, perceptions of stress as honorable may decrease the likelihood of properly seeking and replenishing resources. Inadequate replenishment of resources may include not incorporating appropriate recovery time during and after work, not reaching out to sources of social support, or not seeking help for work-related problems. As a specific example, Spence and Robbins (1992) noted that those high in workaholism and perfectionism were unlikely to ask colleagues for help. Individuals with perceptions that high amounts of stressors are impressive and normative, rather than a signal of excessive demands, will be less likely to seek out resources to help cope with stress. Again these relationships between the Stress Badge and mental and physical health symptoms were expected to hold, even when accounting for the measures of workaholism, perfectionism, relaxation activities, psychological detachment, and general social comparisons.

Hypothesis 6a: The Stress Badge will be positively related to symptoms of depression and anxiety.

Hypothesis 6b: The Stress Badge will explain incremental variance in symptoms of depression and anxiety, beyond the effects of workaholism, perfectionism, relaxation activities, psychological detachment, and general social comparisons.

Hypothesis 7a: The Stress Badge will be positively related to physical health symptoms.

Hypothesis 7b: The Stress Badge will explain incremental variance in physical health symptoms, beyond the effects of workaholism, perfectionism, relaxation activities, psychological detachment, and general social comparisons.

Work-Family Conflict and Relationship Quality. In addition to wellbeing in terms of physical and mental health, it is important to consider how the Stress Badge may affect social relationships. As work-family conflict can negatively affect employee health and wellbeing, as well as job performance and work-related attitudes (Allen, 2000), this is an important variable to consider. In particular, it may be difficult to achieve work-family balance if employees are focused on appearing successful through enduring excessive workplace demands and feel guilty when attempting to recover from these demands. Studies have found that working excessive hours or overtime is related to more work interference with family (e.g., Van der Hulst & Geurts, 2001). Thus, it is likely that those who see stress as impressive, may seek out more work opportunities or have trouble spending quality recovery time with their family.

Other variables that represent potentially maladaptive views of work, such as workaholism, have also been related to work-family conflict (Taris et al., 2005; Ng et al., 2007). In the same way as those who feel addicted to work may struggle to maintain positive social relationships, those who view stress as a impressive may also struggle to maintain their relationships and control the strain associated with work stressors that could be detrimental to relationship quality. Therefore I expected that the Stress Badge would be positively related to work-family conflict.

In a similar manner, viewing stress as a badge of honor was expected to harm the overall quality of work and non-work social relationships. In line with the hypothesis related to work-family conflict, the Stress Badge was expected to be associated with lower quality family relationships (i.e., relationship quality with one's spouse). In addition, it was expected that the Stress Badge would be associated with lower quality co-worker relationships in the work domain. Because those with maladaptive views of stress have been found to have negative social relationships in general, and may be slow to seek support from their peers when needed (e.g., Taris et al., 2005; Ng et al., 2007; Spence & Robbins, 1992), I expected that co-worker relationships may be harmed. Social comparisons may further heighten the potential for harm to social relationships, particularly if individuals feel competitive with their co-workers in making sure they are stressed enough to appear successful. Individuals high on the Stress Badge may further feel more hesitancy in seeking support from their supervisors, resulting in potential damage to the relationship between the employee and supervisor. Because of the specific nature of the stress-badge construct capturing interpersonal thoughts about high amounts

of stressors, the measure was expected to predict incrementally beyond the convergent validity measures.

Hypothesis 8a: The Stress Badge will be positively related to work-family conflict.

Hypothesis 8b: The Stress Badge will explain incremental variance in work-family conflict, beyond the effects of measures of workaholism, perfectionism, relaxation activities, psychological detachment, and general social comparisons.

Hypothesis 9a: The Stress Badge will be negatively related to relationship quality (i.e., with one's spouse, co-workers, and supervisors).

Hypothesis 9b: The Stress Badge will explain incremental variance in relationship quality, beyond the effects of measures of workaholism, perfectionism, relaxation activities, psychological detachment, and general social comparisons.

Potential Mediators. Finally, mechanisms of taking on too many work tasks or having insufficient recovery time were briefly discussed as potential reasons that those high on the Stress Badge would experience health concerns, work-family conflict, and low quality relationships. These potential mechanisms may further be supported by cognitive appraisal theories and COR theory. For instance, individuals may be slow to recognize stressors as threatening and more likely to view stressors as a challenge if they are high on the Stress Badge construct. Thus, they make take on much higher levels of stressors than those low on the Stress Badge. Although challenge stressors are associated with some benefits, there may still be some health concerns of high levels of challenge stressors.

Second, individuals who are high on the Stress Badge may be reluctant to seek recovery experiences. Because they value being stressed as a means to achievement, want to have comparable stress levels to those around them, and may feel remorse for taking time to relax, recovery experiences are likely to be few and insufficient for those high on the Stress Badge. In line with COR theory, a lack of recovery may result in health concerns if available resources (presumably generated by recovery) are insufficient to cope with workplace stressors.

To address these two potential mechanisms, perceived stress and recovery experiences were examined as potential mediators of the relationships between the Stress Badge and outcome measures. Thus, the proposed study empirically tested whether those high on the Stress Badge experience health and wellbeing concerns because of higher levels of stress (presumably because they seek it out) or if they do not make time to recover. These two mediating mechanisms are summarized in Figure 5.

Hypothesis 10: Perceived stress will partially mediate the relationship between the Stress Badge and outcome variables, such that the Stress Badge is positively related to perceived stress, which is negatively related to health.

Hypothesis 11: Recovery experiences will partially mediate the relationship between the Stress Badge and outcome variables, such that the Stress Badge will be related to low reports of recovery experiences, which will be negatively related to health.

The present chapter summarized the expected internal dimensions of the Stress Badge construct. The next chapter provides an extension to the Stress Badge construct,

introducing an external outworking of this disposition. Some individuals high in the Stress Badge construct may also express these perceptions through external behaviors, discussed further as Stress-Related Impression Management.

CHAPTER FOUR

STRESS-RELATED IMPRESSION MANAGEMENT

While the focus of the present study was to capture the internal perceptions of stressors as impressive or an indicator of success, the external display of these tendencies was also of interest. Therefore, an external dimension of Stress-Related Impression Management was proposed. Stress-Related Impression Management is defined as a desire to express one's stressor levels to others, so that one's stressor levels are known to be high, with a goal of appearing impressive. A measure of Stress-Related Impression Management was administered to determine whether actually seeking to display one's internal notions regarding stressors (that stressors make them important, that they feel remorse for relaxing, and that they compare their stressor levels to others) could exacerbate the relationships between the internal Stress Badge dimensions and the outcomes that are more social in nature (i.e., work-family conflict; relationship quality).

The idea of impression management originated with Goffman's (1959) work, where he noted that individual behavior is affected by how individuals feel others perceive them. Impression management behaviors may be rooted in fundamental human needs to belong and to feel that others view them positively (Baumeister & Leary, 1995), and have an ultimate goal that one's enhanced image will lead to favorable outcomes (e.g., Brouer et al., 2015). A review of the impression management literature identified at least 31 forms of impression management behaviors that may be used (Bolino, Kacmar, Turnley, & Gilstrap, 2008). Simpler conceptualizations focus on impression management that is carried out through more positive tactics (e.g., trying to appear likeable, engaging

in extra-role behaviors, expressing accomplishments) or negative tactics (e.g., intimidation, expressing power, trying to appear in need) that are expected to lead to desired outcomes (Bolino & Turnley, 2003).

Two types of impression management behaviors may be particularly relevant to the present study: self-promotion (communicating one's accomplishments in order to appear competent) and exemplification (doing more than is necessary to appear superior). Studies have shown that individuals may indeed have motives to seem impressive through talking about work demands, such as through communicating one's job duties as highly demanding, even when the actual workload is relatively low (Hambrick, Finkelstein, & Mooney, 2005). Studies specifically on exemplification have described this strategy as one focused on making one's competence as an employee known (Erhardt & Gibbs, 2014; Harris, Gallagher, & Rossi, 2013). Erhardt and Gibbs (2014) highlighted that the use of exemplification may be particularly prominent in knowledge work because the products of hard work are not as visible in knowledge work, compared to physical labor. Therefore, employees must engage in efforts to make their work visible, displaying their competence to their manager and relevant others.

In interviews and observations of various knowledge work teams, Erdhart and Gibbs (2014) noted that in addition to face-to-face communication of one's workload, employees may use techniques such as sending emails late at night, on the weekend, or during vacation as a sign of their dedication to work through exemplification strategies. These efforts to promote oneself were noted to be somewhat easier with technology communications (e.g., highlighting one's effort through email rather than "bragging" in

person or in front of colleagues). Such techniques may be particularly important when considering how employees may boast about their stressor levels and attempt to make their stressor levels known. Further, talking about one's stress levels in general may seem to be a more humble avenue of expressing accomplishment and bringing attention to one's work (e.g., I am working on so many tasks and under pressure, rather than transparently saying I think I am important and doing a great job).

Overall, the effects of impression management behaviors have most often been studied in the context of recruitment, interviews, and performance appraisal (Bolino et al., 2008). Some studies suggest that impression management behaviors may not be strongly related to performance ratings (Viswesvaran, Ones, & Hough, 2001). Other studies suggest the relationship between impression management and performance is more complex. For example, positive impression management tactics tend to result in more favorable outcomes (i.e., performance ratings) when enacted with perceived sincerity (Broeuer et al., 2015). In addition to a match between a behavior and perceived sincerity from the observer, it may be important that an individual's traits match their behavioral expressions (e.g., match between expression of modesty and trait modesty; Diekmann, Blickle, Hafner, & Peters, 2015).

Fewer studies have focused on how impression management may affect relationship quality, health, or wellbeing outcomes. Some evidence suggests that the use of negative impression management strategies by subordinates is associated with lower supervisor ratings of relationship quality (e.g., Carlson, Carlson, & Ferguson, 2011). Fewer studies have examined how impression management strategies could influence co-

worker perceptions; however, there is some evidence that impression management behaviors focused on promoting the qualities of others can benefit team relationships (Strutton & Pelton, 1998). Finally, no studies to the author's knowledge have investigated how impression management efforts at work may spillover into non-work relationships.

In terms of health and wellbeing, studies have provided mixed evidence as to whether impression management strategies affect individual health and wellbeing. However, there are more consistent findings that impression management behavior in the midst of a demanding situation may exert more negative effects. For instance, De Cuyper, Schreurs, Vander Elst, Baillien, and De Witte (2014) found that the use of exemplification strategies was associated with higher levels of emotional exhaustion, particularly in the context of a stressful work context, operationalized as perceived job insecurity. The interaction between job insecurity and impression management in this study provided evidence that individual perceptions about stressful conditions can exacerbate the influence of impression management tactics on wellbeing outcomes.

Harris et al. (2013) looked at exemplification and intimidation as positive and negative impression management strategies. They proposed that both would drain personal resources and result in negative wellbeing outcomes. While they expected exemplification (e.g., always trying to appear busy, putting in extra effort) to be associated with higher burnout and strain, this effect was non-significant. Only intimidation tactics resulted in a positive main effect on burnout and strain. However, they did find that a culture of exemplification in an organization (i.e., exemplification tactics are perceived as common in the workplace) was associated with burnout and

strain. Further there was an interaction, such that those with a high usage of exemplification strategies and a high perception that exemplification was commonplace in the work environment reported the highest levels of burnout.

These effects of impression management on emotional exhaustion and burnout may also be useful in understanding the exacerbating effect impression management could also have on relationship quality. As noted, some impression management behaviors may result in relationship harm (e.g., Carlson et al., 2011). Erhardt and Gibbs (2014) found evidence that some subordinate impression management strategies (i.e., exemplification) could create a tension between workers and managers. In their qualitative work, they found trends that managers prefer to give credit to all in order to maintain motivation and harmony among a work team. Thus, those who see stress as impressive and seek to display this in their interactions with others as an impression management technique may harm their interpersonal relationships with their supervisors who may not want to over-reward these displays.

If these impression management displays are more public in nature, rather than just directed toward one's supervisor, they could also harm co-worker relationships. Such displays could be particularly concerning if they occur in an environment or under expectations that exhibiting high stress is normal and impressive. Beyond work relationships, Stress-Related Impression Management may result in detriments to the work-family interface. As Erhardt and Gibbs (2014) provided the example of emails outside of working hours as a way to seem impressive to one's manager, such behaviors are likely to result in low recovery experiences and higher work-family conflict.

The present study proposed that just as individuals may seek to highlight their competence and abilities, individuals might also promote themselves through highlighting their stressful and busy schedules. Such impression management displays may be especially common among knowledge workers or some types of service workers, who may see high experience of stressors as impressive or a sign of competence. I expected that Stress-Related Impression Management would be negatively related to the socially-related outcomes of relationship quality and work-family conflict, in line with the research that certain impression management strategies may be harmful to interpersonal relationships (e.g., Carlson et al., 2011) and drain individuals of resources that support wellbeing (e.g., De Cuyper et al., 2014; Harris et al., 2013). The present study focused on socially-related outcomes because those are likely to be most strongly impacted, as impression management involves interaction between two more individuals. Thus these outcomes are most directly relevant to an employee's interactions with others.

In addition, I expected that Stress-Related Impression Management would exacerbate the negative relationships between the Stress Badge and these outcomes. The interaction effect was expected in light of the past evidence that certain demanding contexts can exacerbate the effects of impression management on wellbeing outcomes (e.g., De Cuyper et al., 2011). Specifically, viewing stress as honorable and impressive could create a context where Stress-Related Impression Management behaviors are consistent with this individual perception, which would further drain resources as individuals seek to fulfill their personal expectations and also engage in associated impression management behaviors. These relationships are depicted in Figure 3.

Hypothesis 12a: The relationship between the Stress Badge and work-family conflict will be moderated by Stress-Related Impression Management, such that the negative relationship between the Stress Badge and work-family conflict will be strongest at high levels of Stress-Related Impression Management.

Hypothesis 12b: The relationship between the Stress Badge and relationship quality will be moderated by Stress-Related Impression Management, such that the negative relationship between the Stress Badge and relationship quality will be strongest at high levels of Stress-Related Impression Management.

CHAPTER FIVE

PILOT STUDY AND METHOD OVERVIEW

Overview of Proposed Studies

Initial development and testing of the Stress Badge construct was conducted in the context of college student stressors. A pilot study testing the Stress Badge items was carried out using a student sample, providing initial support for the three internal dimensions. These results are first presented as preliminary evidence for the Stress Badge measure and a framework for the proposed studies using employee samples.

The proposed hypotheses and research questions were addressed through two studies using employee samples. Study 1 was a cross-sectional study of employed participants recruited via Amazon Mechanical Turk (MTurk; $N=248$). The goal of Study 1 was to further refine the Stress Badge measure in the context of an employee sample. Study 2 was a longitudinal study of MTurk Employees (Time 1 $N = 1077$; Time 2 matched $N = 752$) designed to test the study hypotheses, thus providing support for the validity of the Stress Badge measure. These studies are described in the next two chapters.

Pilot Study: Method and Findings

A preliminary version of the Stress Badge measure was developed and tested using a college student sample. The measure was originally contextualized to typical college student experiences and stressors (e.g., comparisons to students in other majors; wanting levels of busyness with school work to be known). In collaboration with a team of undergraduate student researchers, items for each specific dimension (Stress as

Achievement, Relaxation Remorse, and Stress-Related Social Comparison) were developed, where the undergraduate researchers provided input on typical perceptions of stress among college students. Once a preliminary set of items were developed, they were given to a team of undergraduate and graduate students, along with definitions of the three sub-dimensions. They were asked to categorize each item into one dimension, and provide feedback on how well the intended domains were captured. Any item that was not correctly sorted by the majority of the raters was excluded from the pilot study.

The Stress Badge measure was then administered to a college student sample ($N = 120$), along with open-ended questions, asking for examples or reasoning the participant used in responding to the items within each of the three sections. Preliminary analysis of the data provided support for the measure, which had a three-factor structure when subjected to an Exploratory Factor Analysis (EFA). Items were considered to load on a given factor when the factor loading was greater than .40 and the item did not load greater than .40 on two or more factors. The Stress-Related Social Comparison subscale demonstrated acceptable reliability ($\alpha = .89$), as did the Relaxation Remorse dimension ($\alpha = .90$). The reliability of the Stress as Achievement scale was lower ($\alpha = .64$).

Some items were further adapted based on qualitative responses. In particular, open-ended responses regarding the Stress as Achievement subscale revealed that the items were perhaps worded too strongly. Students believed that stress may come alongside success, but in general did not support that one must be stressed in order to be successful. For example, “Stress often causes people to have to work harder and therefore can result in success. Stress isn’t key to being successful, but can be part of it.” represents

a common sentiment from the open-ended student responses. However, some students did interpret the anticipated sentiment of perceiving a high amount of stressors as a part of being successful. For example, one student responded, “Successful people are busy. Busy people are stressed”. We adjusted the items to be worded less strongly to capture the essence that stress may be viewed as a means to achievement, without making the items sound as if one absolutely has to be stressed in order to be successful.

Examining qualitative data also led to the separation of Stress-Related Social Comparison from Stress-Related Impression Management. In the original development of the scale, we theorized social comparisons as a single category of inwardly and outwardly comparing one’s stress levels to others. Many students did discuss the overall sentiment of internally comparing one’s stress levels to others. For example, one student said “College is a really busy and stressful time... all of your friends talk about their busy schedules, you feel like you’re doing something wrong if you’re not equally as busy.” Thus, students did seem to use their peers as a comparison for an appropriate amount of stressors or validation in their own stressor levels as impressive (e.g., comparing their amount of stress to peers with “easier” majors).

Students were more hesitant to endorse that they make public comments or demonstrations of their stressor levels in a more competitive manner. One student responded, “Many conversations seem to be ‘my horse is bigger than yours’ and I’ll think about how my problem may be bigger, but I don’t like to make it known.” However, there were some students that agreed, though this behavior seems undesirable, they engage in impression management type behaviors in talking about stress. Some example

responses were: “I did a lot of erasing, because I didn’t think I did those things because they sound bad, but I guess I do. Since all my peers live at school with me everyone constantly talks about their schedule” and “I don’t like to compete about stress or talk about it, but I know I do so sometimes.” Based on these responses, the items were separated and re-worded to more clearly reflect internal social comparisons to evaluate one’s stress in comparison to others, as compared to the external behaviors that aligned more with impression management literature. Because the external behaviors were discussed less consistently and seemed to be a distinct behavior from internal comparisons, Stress-Related Impression Management was theorized as outside the internal Stress Badge construct.

Responses following the Relaxation Remorse subscale were very consistent with the intended construct. For instance, students responded “I feel as though mental breaks are necessary, but it’s hard to relax knowing I should be doing something productive” and “100% of the time I’m relaxing I feel as though I am slacking off and that more should be done even when I have completed my tasks.” Students clearly expressed the sentiment that they are often unable to relax or feel guilty for doing so. Therefore, this scale was only adapted to fit an employee context rather than a student setting.

In sum, the pilot study provided preliminary evidence that supported the unique dimensions of the Stress Badge construct in a student sample. I proposed in the present study that the same three-factor structure (Stress as Achievement, Relaxation Remorse, and Stress-Related Social Comparison) would emerge in an employee sample, with the exception that the added Stress-Related Impression Management items would form a

separate subscale from Stress-Related Social Comparison. Further, I proposed that the reliability of the Relaxation Remorse and modified Stress-Related Social Comparison and Stress-Related Impression Management subscales would remain at acceptable levels; the reliability of the Stress as Achievement scale was expected to increase with the altered items.

CHAPTER SIX

STUDY 1 METHOD AND RESULTS

The purpose of Study 1 was to examine the psychometric properties of the Stress Badge measure, adapted to an employee sample. Prior to conducting the study, it was determined that a sample of approximately 200 would be sufficient, given the number of items per factor and expectations that the communalities would be moderate to high (MacCallum, Widaman, Zhang, & Hong, 1999). The study was conducted using a sample from Amazon's Mechanical Turk (MTurk). MTurk has been noted as a valuable method to collect survey data from a representative sample (Paolacci, & Chandler, 2014). In particular, MTurk offers the benefit of respondents that are more ethnically diverse, older, and have more work experience as compared to using university students as a convenience sample (Behrend, Sharek, Meade, & Wiebe, 2011). MTurk samples have been found to result in data that is comparable in quality to other convenience samples (Bartneck, Duenser, Moltchanova, & Zawieswa, 2015).

Participants and Procedure

An online survey containing the Stress Badge measure, open-ended items regarding responses to the Stress Badge items, and general personality and individual difference measures was administered to 264 employees recruited through MTurk. The personality and individual differences measures were included for exploratory purposes, to determine if any individual differences may be correlated with the Stress Badge measure. Qualifications to participate in the survey and receive compensation were being 18 years of age or older, a U.S. citizen, and being employed at least 30 hours per week in

a job outside of MTurk. Of the 264 participants, 16 (6%) did not meet study qualifications, did not pass attention checks, or took the survey in an unreasonably fast amount of time (less than 3 minutes). Thus, a final sample of 248 was retained. Participants were paid \$1.50 to complete the survey, which on average took them 15 minutes to finish.

In regards to demographics, the sample consisted of a similar percentage of males (52%) and females (48%). The average age in the sample was 34.79 ($SD = 9.58$). Most participants were white (81%), with the remaining being African American (9%), Asian (8%), and a small percentage reporting American Indian or Alaska native (<1%) or other (2%). In terms of education, most had a bachelor's degree (40%), some college (21%), or an Associates or two-year technical degree (15%). Fewer reported having a high school diploma/GED (12%) or a post-graduate degree (12%) as their highest level of education. Participants reported being employed in a wide range of occupations, with some of the most common fields indicated as sales and related occupations (14%), computer and mathematical (12%), business and financial operations (11%). The average hours worked per week was 41.63 ($SD = 7.19$).

Measures

Demographics. Demographic information that was collected included age, gender, ethnicity, highest level of education, vocational field, required work hours per week, and average hours actually worked per week.

Stress Badge and Stress-Related Impression Management. The Stress Badge measure consisted of 30 items assessing the three internal dimensions (Stress as

Achievement, Relaxation Remorse, and Stress-Related Social Comparison) as well as the external component of Stress-Related Impression Management. The full measure is provided in Appendix A.

Additional information was acquired about the participant responses to the Stress Badge and Stress-Related Impression Management measures through open-ended questions. At the end of each section of items representing the stress-badge dimensions and after the Stress-Related Impression Management items, participants were asked to respond to the following prompt: “Please describe why you responded to the items above as you did. You can provide specific experiences you were referencing, thoughts you had, or examples that affected your response.”

Personality and Individual Differences. Three scales were included to provide general information on how the Stress Badge measure related to individual difference variables. These scales included measures of political skill, core-self evaluations, and Big Five personality characteristics. A full list of items for each of the three scales is provided in Appendix B.

Political Skill. Political skill was assessed with the 18-item Political Skill Inventory (PSI; Ferris, et al., 2005). Ferris and colleagues (2005) provided evidence that the PSI was related to variables that may be relevant to impression management and comparison behaviors of interest in the present study, such as self-monitoring and emotional intelligence. The PSI includes four subscales of networking ability (e.g., I spend a lot of time and effort at work networking with others), apparent sincerity (e.g., I try to show a genuine interest in other people), social astuteness (e.g., I understand people

very well), and interpersonal influence (e.g., I am good at getting people to like me). Items were rated on a seven-point scale, ranging from *strongly disagree* (1) to *strongly agree* (7). Each of the scales demonstrated acceptable levels of reliability, ranging from $\alpha = .81$ to $.93$.

Core-Self Evaluations. Core-Self Evaluations were assessed with the 12-item Core-Self Evaluations Scale (CSES; Judge, Erez, Bono, & Thorensen, 2003). The CSES was developed to assess a more general trait addressing perceptions of the self as good or bad, and includes self-esteem, generalized self-efficacy, neuroticism, and locus of control. The CSES has been shown to exhibit acceptable psychometric properties and to be related to relevant constructs such as job satisfaction, performance, and life satisfaction (Judge et al., 2003). Items were rated on a five-point scale ranging from *strongly disagree* (1) to *strongly agree* (5). Sample items were “I am confident I get the success I deserve in life” and “Overall, I am satisfied with myself.” The overall scale demonstrated acceptable reliability in the present sample, with $\alpha = .92$.

Big Five Personality. The Big Five personality characteristics were assessed with an abbreviated form of the Big Five Inventory (BFI), using 10 items (BFI-10; Rammstedt & John, 2006). The BFI-10 contains 2 items for each of the Big Five facets: Openness (e.g., has an active imagination), Conscientiousness (e.g., does a thorough job), Extraversion (e.g., is outgoing, sociable), Agreeableness (e.g., is generally trusting), and Neuroticism (e.g., gets nervous easily). The BFI-10 was found to exhibit similar psychometric properties to the full BFI, and found to be sufficient to assess the Big Five in the context of survey studies with time constraints (Rammstedt & John, 2006). All

items were rated on a five-point scale ranging from *disagree strongly* (1) to *agree strongly* (5). Item correlations (between the two items) for each facet were moderate to high, ranging from $r = .35$ to $r = .65$.

Attention checks. Two attention check items were included to ensure data quality and detect participant inattentiveness (Cheung, Burns, Sinclair, & Sliter, 2017). These two items were embedded within the subscales: “Please select agree for this item” and “Please select disagree for this item”. Participants who did not answer these items correctly ($N = 3$), did not receive pay for their survey responses and their responses were not retained for data analyses.

Data Analysis

A confirmatory factor analysis (CFA) was conducted using EQS statistical software (Bentler, 2006) to confirm the dimensionality of the Stress Badge measure (the three internal dimensions and Stress-Related Impression Management). The hypothesized four-factor model was tested, and compared to alternative models. Adequate fit of the overall factor structure was determined using several fit indices, including estimates of relative (i.e., CFI) and absolute (i.e., RMSEA; SRMR) fit. Specifically, the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR) estimates are reported to determine model fit. Although the chi-square value is often considered in assessing fit, it can be highly affected by sample size (Marsh, Hau, & Wen, 2004). Therefore, the chi-square was only used in comparing model fit between different factor structures in a chi-square difference test, but not as an indicator of overall model fit. Acceptable levels of fit were

based on guidelines recommended by Hu and Bentler (1999), such that good fit is considered a CFI greater than .95, RMSEA lower than .05, and the SRMR lower than .08.

In more specific examination of the items, the standardized factor loadings were examined for evidence of convergent validity within the subscales. Ideally, items should have a standardized loading greater than .70 on their respective factor, as standardized loadings should explain the majority of the variance in an indicator (i.e., $> .50$; Kline, 2011). Any items that did not load above .70 or that cross-loaded onto another factor, as indicated by the LeGrange Multiplier (LM) test, were examined more closely, along with additional evidence from the qualitative responses for each subscale. Average Variance Extracted (AVE) was calculated as the average of the squared loadings to provide further information that the items display high convergent validity within the subscales. The square root of the AVE was compared to correlations among the three internal subscales and the external subscale as evidence of discriminant validity between subscales. In the case of the present study, it was expected that correlations among the internal subscales would only be slightly lower (or potentially higher) than the square root of the AVE for the individual factors, suggesting that a second-order factor would fit the data well in further analyses. The utility of the second-order factor was empirically tested in relation to the dependent variables of interest in Study 2.

Though the four-factor structure was expected to fit the data, several alternative models were considered and compared to the four-factor model. The four-factor model was compared to: 1) a one-factor model with all items modeled as a single dimension, 2) a two-factor model with the internal dimensions loading on one factor, separate from the

Stress-Related Impression Management scale, and 3) a three-factor model with Stress as Achievement and Relaxation Remorse as separate factors, but Stress-Related Social Comparison and impression management combined. The final model derived was compared to the alternative models to determine if the fit was significantly better using the Satorra-Bentler Chi-square difference test (Satorra & Bentler, 2001).

After determining the factor structure that best fits the data, composite reliability and Cronbach's alpha were examined for each subscale. More detailed tests of Cronbach's alpha were conducted in SPSS v. 24 to examine the estimates of reliability if any of the items were removed. General relationships between the subscales and demographic variables were also examined through the use of one-way ANOVAs (gender, education, ethnicity), and correlations (work hours, age). Finally, the qualitative data was reviewed to ensure that the participants understood the items and responded in ways that were consistent with the proposed subscales. Participant responses provided additional information for adapting any items (or excluding items altogether) that did not exhibit acceptable psychometric properties.

Results

Stress Badge Factor Structure. The CFAs that were used to provide evidence for the factor structure of the Stress Badge measure are summarized in Table 1. Robust estimation methods were used based upon evidence of high multivariate kurtosis (Mardia's Coefficient = 193.93), as is recommended in the literature (Hu, Bentler, & Kano, 1992; Curran, West & Finch, 1996). All reported values for the model fit indices

are based on the robust estimation, except the SRMR, which is not provided in the robust estimation results.

The four-factor model (the three internal Stress Badge dimensions modeled as separate factors, and the fourth external dimension as an additional factor) initially exhibited acceptable fit to the data: $SB \chi^2(371) = 635.04, p < .001$; CFI = .94; RMSEA = .05, 90% CI (.05, .06); SRMR = .06. In comparison, a one-factor structure exhibited poor fit: $SB \chi^2(377) = 2447.70, p < .001$; CFI = .49; RMSEA = .15, 90% CI (.14, .15), SRMR = .14. Two and three factor models were also tested. When the three internal dimensions were modeled as one factor and Stress-Related Impression Management was modeled as a separate factor, fit was poor: $SB \chi^2(376) = 1873.26, p < .001$; CFI = .64; RMSEA = .13, 90% CI (.12, .13); SRMR = .13. In a three-factor model, Stress as Achievement and Relaxation Remorse were modeled as two factors and Stress-Related Social Comparison and Stress-Related Impression Management were combined. This model did not exhibit acceptable fit: $SB \chi^2(374) = 898.27, p < .001$, CFI = .87, RMSEA = .08, 90% CI (.07, .08), SRMR = .09.

Given the superior fit of the four-factor model, the results of the LM test and the standardized factor loadings for the four-factor solution were examined to determine if there was evidence to support further modifications of the measure. All standardized factor loadings for this model are displayed in Table 2. Most items loaded greater than .70 on their respective factor. However, nine items loaded between .56 and .68. These items were marked for consideration for removal (as the loadings did not explain > 50% of the variance in the item), following further examination of the reliability analyses and

qualitative data. The LM test also revealed two items that were potential cross loading items; both of which also had a low loading on their respective factor. These items are noted in Table 2.

Examination of the qualitative responses (described in more detail later) and further consideration of the items with low loadings supported the removal of eight items (six with a low loading; two with a low loading and that were indicated as potential cross-loading items by the LM test). One item on the Stress-Related Social Comparison subscale that originally loaded .68 was retained to keep the subscale at four items in length. Removing the low loading items resulted in very good fit to the data, $SB \chi^2(183) = 265.55, p < .001$; CFI = .97; RMSEA = .04, 90% CI (.03, .05), SRMR = .045. The revised four-factor model exhibited significantly better fit than all other factor structures (See $SB \chi^2$ difference tests reported in Table 1). In sum, the CFA analyses supported the use of a final set of 21 items to be included in the Study 2 survey¹.

Subscale Descriptive Statistics, Reliability, and Correlations. Table 3 displays the descriptive statistics, reliability estimates, and correlations among the subscales. Mean ratings were near the midpoint for the Stress as Achievement ($M = 4.33, SD = 1.26$), Relaxation Remorse ($M = 3.94, SD = 1.68$), and Stress-Related Social Comparison ($M = 3.66, SD = 1.38$) scales. The Stress-Related Impression Management had a lower level of endorsement on average ($M = 2.47, SD = 1.27$). For each of the individual subscales, there was no evidence of non-normality in responses, with indices of skewness and kurtosis within normal ranges (i.e., +/- 2).

¹ In addition, there was one item from the Relaxation Remorse subscale that was not included in Study 1 due to an error by the researcher. This item was added to Study 2.

Each of the subscales demonstrated acceptable levels of reliability, with Cronbach's alpha and composite reliability (coefficient rho) both being .91 for Stress as Achievement. Cronbach's alpha was .94 for Relaxation Remorse, while composite reliability was .95. Cronbach's alpha and composite reliability were both .83 for Stress-Related Social Comparison, and .91 for Stress-Related Impression Management. More detailed analyses using SPSS provided evidence that the reliability would not be improved by removing any one item. The AVE for the items loading on each factor was: .60 for Stress as Achievement, .77 for Relaxation Remorse, .55 for Stress-Related Social Comparison, and .68 for Stress-Related Impression Management.

The correlations among the factors, as well as the square root of the AVE within each factor, were further examined from the results of the final four-factor model. The results indicated that the subscales were generally correlated at a moderate level. Stress as Achievement correlated at similar levels with Relaxation Remorse ($r = .39, p < .01$) and Stress-Related Impression Management ($r = .42, p < .01$). However, Stress as Achievement was correlated more strongly with Stress-Related Social Comparison ($r = .56, p < .01$). Relaxation Remorse exhibited a moderate correlation with Stress-Related Impression Management ($r = .28, p < .01$) and with Stress-Related Social Comparison ($r = .40, p < .01$). Finally, Stress-Related Impression Management and Stress-Related Social Comparison exhibited the strongest correlation with one another ($r = .58, p < .01$). These correlations are somewhat in opposition to the proposed second-order factor, where it was expected that Stress as Achievement, Relaxation Remorse, and Stress-Related Social

Comparison would be most strongly correlated with one another, forming a second-order construct separate from Stress-Related Impression Management.

Next, the square root of the AVE for each subscale (.77 for Stress as Achievement; .88 for Relaxation Remorse; .74 for Stress-Related Social Comparison; and .83 for Stress-Related Impression Management) was compared to the correlations among the subscales. Based on the square root of the AVE, there was strong evidence of convergent validity among items within the subscales. That is, the items on average correlated strongly with their respective factor. The correlations between subscales provided evidence of discriminant validity. Specifically, the low to moderate correlations among the four dimensions provided evidence that the subscales assess unique factors. These relationships provide important information about the factor structure of the data; however, they do not necessarily provide strong evidence for the presence of a second-order factor. Still, the utility of a second-order factor was more directly examined in Study 2 using the full predictive model (Figure 3).

Qualitative Responses. Qualitative responses to the open-ended questions corresponding to each major dimension were also examined. In general, participants seemed to understand the questions and respond as expected. Qualitative responses aligned with what could be considered a normal range of responses for each subscale (e.g., some strongly disagreed, some were more neutral, some strongly agreed with the sentiments). The overall sentiments expressed, along with sample quotes from participants, are provided in Table 4.

Within several subscales, there seemed to be more negative responses from the majority of respondents to extreme sentiments expressed in items regarding workload levels as something to compete about or as a sole marker of success. These themes complemented the results of the CFA, where some of the items that were worded in a more extreme manner did not load as highly. In regards to the specific subscales, responses to the Relaxation Remorse items seemed to be most uniform among participants. Many did agree that taking breaks could make one feel guilty, while others felt that breaks are necessary. In the other dimensions there were more disparate responses, where there was some endorsement of the desired sentiment, but many who were opposed to the overall notion of needing to have a high workload to be successful or competing with others to appear busy or under a high workload.

Personality Correlates and Demographic Differences. To provide initial information about individual difference correlates with the Stress Badge subscales, relationships with personality and demographic characteristics were examined (See Table 5). In general there were few significant correlations with demographic variables. The only significant relationships were a negative relationship between age and Stress-Related Social Comparison ($r = -.16, p < .05$), and a positive relationship between hours worked per week and Relaxation Remorse ($r = .18, p < .01$). Further, a series of one-way ANOVAs revealed no significant mean differences in any of the subscales by gender, ethnicity, or education ($p > .05$).

In terms of personality variables, Core-Self Evaluations exhibited small correlations with all subscales (r range $-.20$ to $.14, p < .05$). Several aspects of political

skill were correlated with the subscales. Most correlations were small; however there was a moderate correlation between Stress as Achievement and networking ability ($r = .35, p < .01$). Lastly, while there were several significant correlations with Big Five personality characteristics, most were small in magnitude (r range $-.18$ to $.20, p < .05$).

CHAPTER SEVEN

STUDY 2 METHOD AND RESULTS

The goal of the second study was to establish convergent, discriminant, and predictive validity evidence for the Stress Badge measure using a longitudinal design among a sample of MTurk workers. While the study was not a full-panel longitudinal design (i.e., measuring all variables at both time points), it allowed for the separation of responses, which is a valuable design feature in reducing common method bias (Podsakoff, MacKenzie, Lee, & Podaskoff, 2003). A two-month time period was used in accordance with calls for shorter durations in longitudinal studies of organizational stress (e.g., DeLange et al., 2004).

Power Analysis

Prior to collecting data, it was determined that a minimum of 80 participants would be needed to have sufficient power to detect the unique effects of the three internal Stress Badge dimensions on outcome variables (power = .80, α = .05). This estimate was calculated based on the expected correlations between the three predictors and outcomes, as well as expected correlations among the predictors (Maxwell, 2000). An estimated correlation of .20 to .25 was used for relationships with outcomes because this range has been found between similar constructs (i.e., stress mindsets) and performance, health, and wellbeing outcomes (Crum et al., 2013). The estimates from the pilot study with the student sample were used to provide the range of correlations between the internal Stress Badge dimensions in the original study (.10 to .17). However, these estimates are likely

conservative given the smaller sample in the pilot study and the refinement of the measure following the pilot study results.

In considering the sample size needed to find incremental effects of the Stress Badge measure among measures of convergent validity (7 predictors in total with convergent measures modeled as subscales and the Stress Badge as a higher order predictor), it was determined a sample of at least 554 would be needed if all predictors were moderately correlated (average correlation of .30) and related to the outcomes at similar levels as those discussed above. A sample much larger (over 1,000 participants) was acquired at Time 1 to exceed this estimate and to have a sufficient longitudinal sample with expected participant attrition.

Time 1 Participants and Procedure

A sample of workers ($N = 1,077$) was recruited using MTurk. Participants responded to an online survey which included the following measures: the refined Stress Badge measure (Appendix A), measures used to establish convergent validity (workaholism, general social comparison, perfectionism, and recovery experiences; Appendix C), measures used as potential mediators (i.e., recovery experiences, perceived stress; Appendix C), and measures of discriminant validity (i.e., social desirability, positive and negative affect; Appendix D).

Qualifications to participate in the survey and receive compensation were being 18 years of age or older, a U.S. citizen, and being employed at least 30 hours per week in a job outside of MTurk. In total, 1,126 workers completed the survey. There were a total of 1,136 responses, but 10 responses were detected as duplicate worker IDs, despite

directions to only take the survey once. For these cases, only the first response was used, while the second response was excluded from the final dataset. However, for two of the pairs of duplicate responses, the participant did not pass the attention check on their first response. Thus, neither attempt of the survey was retained; this was done to protect the rights of the participants, as the participant was not compensated for either response (i.e., the duplicate or the failed attention check).

Of the 1,126 employees, only one participant was rejected for completing the survey in an unreasonable amount of time (< 3 minutes). Forty-eight participants (4%) failed one or more of the four attention check items distributed throughout the survey. Thus, a final sample of 1,077 was retained. Participants were compensated \$2.00 for completing the survey, which took on average, 20 minutes to complete. They were also told in the information letter that they would receive an invitation to complete a second survey in two months.

In terms of demographics of the Time 1 sample, over half of the sample was male (54%), with the remaining 46% being female. The average age in the sample was 35.48 ($SD = 10.56$). Most participants were white (82%), with the remainder being African American (9%), Asian (5%), American Indian or Alaska native (1%), Native Hawaiian or Pacific Islander (<1%) or other (3%). In terms of education, most had a bachelor's degree (38%) or some college (26%). The remaining participants reported an associates or two-year technical degree (13%), a high school diploma/GED (11%), a post-graduate degree (12%), or just some high school (<1%). as their highest level of education. Participants reported being employed in a wide range of occupations, with some of the most common

fields indicated as sales and related occupations (13%), computer and mathematical (12%), and education, training, and library (10%). The average hours worked per week was 42.21 ($SD = 7.33$).

Time 2 Participants and Procedures

Participants received the invitation for the follow-up survey approximately two months later, using communications on MTurk and their MTurk worker IDs that were collected at Time 1. The Time 2 survey included the Stress Badge measure, the potential mediator variables again (i.e., perceived stress; psychological detachment and relaxation activities), and several outcome measures to establish evidence for predictive validity (job performance, depression, anxiety, physical health symptoms, work-family conflict, and relationship quality; Appendix E). Of the participants that received the invitation, 789 completed the second survey, resulting in a 73% response rate. At Time 2, 29 participants (4%) failed attention checks. Nine responses were duplicate responses or unusable because a worker ID was provided that could not be matched with an ID provided at Time 1. Thus there was a final sample of 752 participants whose responses were matched and were compensated \$2.00 for their participation, which on average took 26 minutes to complete.

Participants who completed the Time 1 survey, but not the Time 2 survey (Time 1 only), were compared to those who completed both surveys (matched). There were two demographic differences between the samples. First, the average age of the matched sample ($M = 36.65$, $SD = 10.63$) was higher than the Time 1 only group ($M = 32.69$, $SD = 9.84$), $t(1074) = 5.73$, $p < .001$. Second, there was a significant difference in highest level

of education between the matched and Time 1 only sample ($\chi^2(5) = 11.17, p = .048$). Specifically, the two samples had similar proportions of participants reporting some high school and a high school diploma. The Time 1 only sample reported a higher proportion of some college (30% compared to 25% in matched), two-year degrees (15% compared to 11%), and Bachelor's degrees (50% compared to 39%) and a lower proportion of post-graduate degrees (8% compared to 13%). There was not a significant difference in average hours worked per week. Chi-square tests also revealed no significant differences in the gender or ethnic makeup of the two samples.

Measures

Demographics. Demographic variables included age, gender, ethnicity, highest level of education, required work hours per week, and average hours actually worked per week. These data were collected at both Time 1 and Time 2, to help with matching any participants who may have made an error in providing their MTurk ID at Time 2.

Stress Badge. The Stress Badge measure that was described in Study 1 was used, with slight modifications based on the results of the CFA and examination of qualitative responses. This refined measure contained a total of 22 items² to assess the four subscales. Each of the subscales demonstrated acceptable reliability at Time 1 (α range .86 to .96) and Time 2 (α range .89 to .96).

Convergent validity measures. Measures of convergent validity were compared to the three internal dimensions of the Stress Badge measure, as described in the study hypotheses.

² The 22 items included the 21 items that were retained in Study 1 and one Relaxation Remorse item that was unintentionally left out of the Study 1 survey.

Workaholism. Workaholism was assessed with a 10-item version of the Dutch Work Addiction Scale (DUWAS; Schaufeli, Shimazu, & Taris, 2009), which was further validated by del Libano, Llorens, Salanova, and Schaufeli (2010). The measure was a shortened version of the original 17-item DUWAS scale (Schaufeli, Taris, & Bakker 2006). The measure contains two factors: working excessively (e.g., I seem to be in a hurry and racing against the clock) and working compulsively (e.g., I often feel that there's something inside me that drives me to work hard). Del Libano et al. (2010) provided evidence that the measure retained the two-factor structure across two different samples and that both subscales demonstrated an acceptable level of reliability in the two samples (ranging from .75 to .85). Del Libano et al. (2010) also provided evidence of criterion-related validity, with both subscales being negatively related to perceived health and happiness. Items were rated on a four-point scale ranging from *almost never* (1) to *almost always* (5). In the present study, Cronbach's alpha was .83 for the working excessively subscale and .77 for the working compulsively subscale. While reliability was acceptable, a CFA did not support the two-factor structure, $SB \chi^2 (34) = 457.92, p < .01$, CFI = .89, SRMR = .09, RMSEA = .11 90% CI (.099, .116). Thus, this scale was modeled using single indicator latent variables, fixing the error variance based on the reliability.

Perfectionism. Perfectionism was assessed with 15 items from the self-oriented perfectionism subscale of the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991). The original scale contained three subscales (self-oriented, other-oriented, and socially prescribed perfectionism) that were found to be unique dimensions in factor

analyses (e.g., Enns et al., 2011; Hewitt & Flett, 1991). All subscales were shown to have criterion-related validity, with self-oriented perfectionism in particular being associated with expected variables such as high self-standards and mental health symptoms (e.g., depression, anxiety; Hewitt & Flett, 1991). Self-oriented perfectionism demonstrated an acceptable reliability, with Cronbach's alpha ranging from .86 to .89 across several samples (Hewitt & Flett, 1991). Only the self-oriented subscale was included in the current survey, as this is most relevant to the internal dimensions of the Stress Badge. Items were rated on a five-point scale ranging from *strongly disagree* (1) to *strongly agree* (5). A sample item is "I must work to my full potential at all times". Cronbach's alpha was .92 in the present study. The unidimensionality of the scale was not supported, $SB \chi^2(90) = 809.70, p < .01, CFI = .91, SRMR = .06, RMSEA = .086 (.08, .09)$. Thus, perfectionism was modeled using single indicator latent variables, fixing the error variance based on the reliability.

Recovery Experiences. Recovery experiences were assessed with eight items from the Recovery Experience Questionnaire (Sonnentag & Fritz, 2007). Two of the four factors in the Recovery Experience Questionnaire (i.e., psychological detachment and relaxation experiences) were used in the present study because they were most relevant to the proposed constructs. Psychological detachment was assessed with four items. Sonnentag and Fritz (2007) found that this subscale exhibited acceptable psychometric properties and was related to expected outcomes, such as stress and wellbeing. In particular, the psychological detachment items represented a unique factor from the other recovery experiences and had an acceptable reliability level, ranging from .84 to .89

across multiple samples. A sample item is “I forget about work”. Cronbach’s alpha in the present sample was .84 at Time 1 and .82 at Time 2.

Relaxation activities were assessed with four items. Again, Sonnentag and Fritz (2007) found evidence for acceptable psychometric properties and criterion-related validity for this subscale. Relaxation represented a unique dimension, demonstrated an acceptable level of reliability ranging from .85 to .87 across multiple samples, and was related to several health and wellbeing outcomes, as expected. A sample item is “I did relaxing things”. Cronbach’s alpha in the present sample was .90 at Time 1 and .89 at Time 2. All eight items were rated on a five-point scale ranging from *strongly disagree* (1) to *strongly agree* (5).

A two-factor structure including relaxation activities and psychological detachment exhibited acceptable fit, $SB \chi^2 (19) = 171.67, p < .001$; CFI = .96, SRMR = .06, RMSEA = .086 (.075, .098). The two sub-scales were modeled as latent variables, which further formed a higher-order construct representing recovery experiences, in analyses of incremental validity and mediation analyses. In the overall convergent and discriminant validity analyses, the variables were modeled using single indicator latent variables, fixing the error variance based on the reliability, because using the items resulted in detriments to model fit because several items cross-loaded with other factors.

Social Comparison. General social comparison tendencies were assessed with an 11-item measure developed by Gibbons and Buunk (1999). Gibbons and Buunk (1999) found support for the psychometric properties of the scale and its prediction of actual comparison behaviors in a lab study. The Comparison Orientation measure demonstrated

acceptable reliability across several samples of students and adults, with Cronbach's alpha ranging from .77 to .85. The scale chosen for the present study focused on the general tendencies to make comparisons to others, rather than specifying upward or downward comparisons. A sample item is "I often compare myself with others with respect to what I have accomplished in life". Responses were on a five-point scale ranging from *strongly disagree* (1) to *strongly agree* (5). Cronbach's alpha in the present sample was .89. A CFA did not support the unidimensionality of the scale, $SB \chi^2 (44) = 613.93, p < .01$, CFI = .86, SRMR = .08, RMSEA = .11 (.10, .12). Thus, this scale was modeled using single indicator latent variables, fixing the error variance based on the reliability.

Perceived Stress. Perceived stress was assessed with the 14-item Perceived Stress Scale (PSS) developed by Cohen, Kamarck, and Mermelstein (1983). Participants were asked to reflect on the past month and rate how often they have felt or thought in a certain way (e.g., been upset because something happened unexpectedly; felt nervous and "stressed"). Cohen et al. (1983) found evidence that the PSS exhibited acceptable reliability across three samples, ranging from .84 to .86, and was associated with expected outcomes of physical and mental health symptoms. Items were rated on a five-point frequency scale ranging from *never* (0) to *very often* (4). Cronbach's alpha in the present sample was .90 at Time 1 and .91 at Time 2. This measure did not exhibit unidimensionality, $SB \chi^2 (77) = 707.06, p < .01$, CFI = .85, SRMR = .09, RMSEA = .10 (.097, .111), and was thus modeled as a composite variable. Because fixing the error for

this scale resulted in errors in estimation, no corrections were imposed on the composite variable.

Discriminant Validity measures.

Social Desirability. Social desirability was assessed with the 13-item short form of the Marlowe-Crowne social desirability scale (SDS; Crowne & Marlowe, 1960; Reynolds, 1982). Reynolds (1982) found that the 13-item version of the original 33-item Marlowe-Crowne scale showed acceptable psychometric properties. The 13-item version represented a single dimension and had an acceptable reliability level of .76. Participants responded whether each statement concerning their personal attitudes and behavior was *true* or *false*. A sample item is “It is sometimes hard for me to go on with my work if I am not encouraged.” Cronbach’s alpha in the present sample was .81. Responses were summed so that a higher score represented higher levels of socially desirable responses. The sum was modeled as a composite variable.

Positive and Negative Affect. Positive and negative affect were assessed with the 20-item Positive Affect and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). The scale consists of 20 one-word items that are clear markers of positive (e.g., enthusiastic, interested) and negative affect (e.g., nervous, distressed). Watson et al. (1988) found support for the two-factor structure of this short form and evidence for the reliability of the two subscales. Specifically, Cronbach’s alpha ranged between .86 and .90 for positive affect and between .84 and .87 for negative affect in a study using multiple item referents (e.g., today, the past few days, in general) and student and non-student samples. Participants responded to the items, with reference to how they feel in

general. Items were rated on a five-point scale ranging from *very slightly or not at all* (1) to *very much* (5). Cronbach's alpha in the present sample was .92 for positive affect and .94 for negative affect; however, the two-factor model did not fit the data well, $SB \chi^2(169) = 1196, p < .01, CFI = .89, SRMR = .07, RMSEA = .075 (.07, .079)$. Therefore, positive affect and negative affect were modeled using single indicator latent variables, fixing the error variance based on the reliability.

Predictive Validity measures.

Job Performance. Job performance was assessed using a 17-item measure (Ode-Dusseau, Britt, & Greene-Shortridge, 2012). Because it was not practical for participants to be in contact with their supervisors to provide job performance ratings, and there was no way to verify that it was indeed the participant's supervisor providing the ratings using the online format, performance was self-rated. Participants were asked to rate themselves in comparison to other employees in their work unit. The measure included four items to assess task performance (e.g., adequately completes assigned duties; Williams & Anderson, 1991). Williams and Anderson (1991) provided evidence for the reliability of these four items, with Cronbach's alpha of .94.

The remaining items were developed to assess extra-role behaviors (Ode-Dusseau et al., 2012). The items were originally designed for assessing healthcare personnel, and were modified to include more general referents. Specifically, four items assessed organizational and co-worker support (e.g., helps smooth out relationships with other employees), four items assessed teamwork (e.g., helps other employees who have heavy workloads), and four items assessed cognitive and motivational effectiveness (e.g.,

handles important details with sustained and focused attention). Supervisor ratings of each of these subscales resulted in acceptable levels of reliability, ranging from .88 to .90, in a study of healthcare employees (Odle-Dusseau et al., 2012). In addition, one item asked the participant to rate their overall performance. In the present sample, reliability of the subscales ranged from .70 to .88. All performance items were rated on a five-point scale, ranging from *worse than most* (1) to *better than most* (5). A four-factor model including the four performance sub-scales fit the data well, $SB \chi^2 (120) = 296.21, p < .01$, CFI = .96, SRMR = .06, RMSEA = .05, 90% CI (.045, .059). To increase parsimony of the predictive validity model, performance was modeled as a higher-order factor, represented by the subscales.

Physical Health Symptoms. Physical health symptoms were assessed with the Physical Symptoms Inventory (Spector & Jex, 1998). The measure provides a list of 18 symptoms (e.g., cold, headache) to which the participant responds if they experienced the symptom within the past six weeks (yes or no) and whether or not they saw a doctor for the symptom (yes or no). From this, three scores can be formed: the total number of symptoms experienced; total number of symptoms with doctor visits; and total of both symptoms and doctor visits for symptoms. For the present study, the primary interest was in the experience of symptoms, thus only the composite sum symptoms score was used in analyses of predictive validity. It is important to note that this measure is considered a formative construct. That is, the measure is not typically subjected to measures of internal consistency because items represent discrete symptoms rather than an overall construct. Spector and Jex (1998) did, however, find evidence that the physical symptom reports

were associated with reported doctor visits and other relevant outcomes. In the present sample, the two scores of experienced symptoms and total number of reported doctor visits were moderately correlated ($r = .28, p < .01$).

Anxiety. Anxiety was assessed using the 20-item Trait Anxiety subscale from the State-Trait Anxiety Inventory (Spielberger, 1983). This measure has demonstrated acceptable internal consistency and test-retest reliability across a variety of studies (Barnes, Harp, & Jung, 2002). Participants were given a list of feelings and asked how often they generally feel each of those provided, rather than how they feel in the moment. Items were rated on a four-point scale ranging from *almost never* (0) to *almost always* (3). Sample items are “anxious”, “calm”, and “worried”. Cronbach’s alpha in the present sample was .92. A one-factor model did not fit the data well, $SB \chi^2 (170) = 1904.85, p < .01$, CFI = .79, SRMR = .10, RMSEA = .12, 90% CI (.114, .124). Therefore anxiety was modeled as a mean composite variable. Because fixing the error for this scale resulted in errors in estimation, no corrections were imposed on the composite variable.

Depression. Depression was assessed with the nine-item Patient Health Questionnaire (PHQ; Spitzer, Kroenke, & Williams, 1999), which has been cited as a reliable and valid measure of depression in the general population (e.g., Kroenke et al., 2001). Participants were asked to respond, referencing the past two weeks, how often they have been bothered by the listed problems. Response options were on a four-point scale, ranging from *not at all* (0) to *nearly every day* (3). A sample item includes is “Little interest or pleasure doing things”. Cronbach’s alpha in the present sample was .92. Because the unidimensionality of the scale was supported by a CFA, $SB \chi^2 (27) = 144.71$,

$p < .01$, CFI = .93, SRMR = .05, RMSEA = .08, 90% CI (.064, .089), depression was modeled as a latent factor.

Work-Family Conflict. Work-family conflict was assessed using three items from the six-item short version of the Carlson, Kacmar, and Williams (2000) multidimensional measure of work-family conflict (Matthews, Kath, & Barnes-Farrell, 2010). Matthews et al. (2010) provided evidence that the abbreviated measure retained the expected factor structure and was correlated with expected variables, such as role stress, work-family balance, and wellbeing. A sample item used to assess work-to-family conflict was, “I have to miss family activities due to the amount of time I must spend on work responsibilities.” The work-family conflict scale demonstrated acceptable reliability, with alpha levels ranging from .75 to .80 in a longitudinal study (Carlson et al., 2000). Items were rated on a five-point scale ranging from *strongly disagree* (1) to *strongly agree* (5). Cronbach’s alpha in the present sample was lower than expected, .68 for work-to-family conflict. Reliability analyses indicated that removing the behavioral-based item would improve the reliability to .73. A CFA of the three items also indicated that the behavioral-based item loaded poorly onto the factor (.42). Based on the poor reliability and low loading, this item was removed from further analyses. Work-family conflict was then modeled as a latent variable; with the error terms of the items constrained to be equal for identification purposes since there were only two items used.

Relationship Quality. Relationship quality was assessed with nine items asking employees to rate several aspects of their relationship with their spouse (if applicable), co-workers, and supervisor. The measures were based on a three-item measure of general

relationship quality developed by Poerio, Totterdell, Emerson, and Miles (2015) that was designed to rate general feelings of closeness, liking, and trust. Poerio et al., (2015) found that this measure demonstrated high reliability, with Cronbach's alpha of .92, and was associated with positive emotions, as expected. The same three items were given with the referent of one's spouse, one's co-worker's, and one's supervisor. All items were rated on a seven-point scale ranging from *not at all* (1) to *extremely* (7). An additional option for "does not apply" was provided, and these responses were recoded to be missing values. Cronbach's alpha in the present sample was .91 for spouse; .88 for coworkers; and .93 for supervisors. A three-factor model fit the items well, $SB \chi^2 (24) = 52.78, p < .01$, CFI = .99, SRMR = .03, RMSEA = .05, 90% CI (.031, .067). These three sub-scales were modeled as latent variables, with the ratings of co-worker and supervisor relationship quality being included as a higher-order construct representing work relationship quality to increase parsimony.

Attention checks. Four attention check items were included to ensure data quality and detect participant inattentiveness (Cheung et al., 2017) in the Time 1 and Time 2 surveys. These items were embedded within the subscales (e.g., Please select agree for this item). As noted previously, participants who did not answer these items correctly did not receive pay for their survey responses and their responses were not retained for data analyses.

Data Analysis

Cross-sectional analyses. After the Time 1 data were collected, a CFA was conducted to again confirm the factor structure that was obtained in Study 1. Model fit

was determined by the CFI, RMSEA, and SRMR, using the guidelines described in the data analysis plan for Study 1. Again, estimates of reliability were calculated (i.e., composite reliability; Cronbach's alpha) and correlations among the subscales were compared to the square root of the AVE to provide initial evidence for a second-order factor in the second sample. Again, it was expected that the square root of the AVE would be relatively similar to the correlations among subscales to provide evidence of a second-order factor.

Relationships were also examined among the internal dimensions of the Stress Badge measure and the additional measures for convergent and discriminant validity. These relationships were tested in a CFA to determine the correlations among the measures, as well as whether modeling each construct separately represents a strong fit to the data. Because acceptable fit could not be achieved with the majority of the existing measures, the variables were modeled as composite variables. These were specifically modeled as factors with a single item indicator, the scale mean. The error variance for each factor was then fixed as: $(1 - \text{reliability of the scale}) * \text{variance of the measure or the squared standard deviation}$. Using this method of fixing the error variance corrects for unreliability in the items, and is thus preferred to only using composite mean variables (Kline, 2007).

As in study 1, initial mean comparisons were conducted to determine if there were any mean differences in ratings of the Stress Badge based on demographic characteristics (e.g., gender, education, ethnicity). Correlations between the Stress Badge and demographic variables of age and hours worked per week were also examined.

Longitudinal analyses. After Time 1 and Time 2 data were collected, structural equation modeling was used to test the hypotheses about the overall (total) effects of the Stress Badge on the outcome measures, the potential moderating effect of Stress-Related Impression Management, and the mediating mechanisms of recovery experiences and perceived stress. A total effects model was first established with the second-order Stress Badge construct related to the outcome measures (as depicted in Figure 1). Fit was indicated by the CFI, RMSEA, and SRMR. The LM test was used to determine whether it was recommended that direct paths be modeled between the Stress Badge subscales and the outcomes, rather than using the second-order factor to carry the variance from the subscales to the outcomes.

Once the total effects model was established, the model was further refined to include a non-linear latent variable to examine potential quadratic effects between the Stress Badge and performance. The latent variable was made up of the squared composite means of the three sub-dimensions to form a separate latent variable (and second-order construct) predicting the outcome of performance. In addition, Stress-Related Impression Management was considered as a moderator of the relationships between the Stress Badge construct and the outcomes of work-family conflict and relationship quality (Figure 3) by creating a latent variable interaction term. The latent variable interaction term had three indicators, which were the composite variables for the product terms for each sub-dimensions multiplied by Stress-Related Impression Management.

Incremental effects were examined by running a series of structural equation models, which included the Stress Badge second-order construct and the convergent

validity measures (workaholism, perfectionism, recovery experiences, and general social comparison) predicting the outcome variables. These models were conducted separately to determine how the Stress Badge uniquely predicted beyond each of the measures. A model only including the respective convergent measure was compared to the model including the Stress Badge to determine the change in the effect size from including the Stress Badge.

Finally, further analyses of mediation were conducted using the second order factor. The indirect effects through the proposed mediators of recovery activities and perceived stress (Figure 2) were tested using the effect decomposition option in EQS. This option provides the results of the Sobel test to calculate the significance of the indirect effect. The two mediators were then combined in a third model to determine which indirect effects remained significant when accounting for both mechanisms. Indirect effects and z-test values had to be calculated for this combined model, as EQS provides the total indirect effect through both mediators, rather than each mediator individually.

Cross-Sectional Results

Stress Badge CFA, Reliability, and Correlations. A CFA was conducted on the Time 1 data to ensure that the four-factor structure obtained in Study 1 fit the data obtained at Time 1 of Study 2. Robust estimation methods were used because of evidence of multivariate kurtosis (Mardia's Coefficient = 177.16). The four factor structure exhibited good fit to the data at Time 1 $SB \chi^2(203) = 750.14, p < .001$; CFI = .97; RMSEA = .05, 90% CI (.046, .054), SRMR = .046. All items loaded on their respective

factor at acceptable levels (above .70), similar to Study 1, with the exception of the one Stress-Related Social Comparison item.

Each of the subscales again demonstrated high reliability in Study 2, at Time 1. For each subscale, Cronbach's alpha was the same as the composite reliability estimate (coefficient rho). The reliability estimates were as follows: Stress as Achievement was .92; Relaxation Remorse was .96; Stress-Related Social Comparison was .86; and Stress-Related Impression Management was .92. Also similar to Study 1, the measure itself demonstrated strong convergent and discriminant validity (Table 6). That is, the square root of the AVE was high within each of the subscales, and the correlations between the subscales were moderate in magnitude. In particular, the correlations among the three internal dimensions ranged between $r = .32$ and $r = .61$, and all were significant ($p < .05$). Stress as Achievement ($r = .43, p < .05$) and Stress-Related Social Comparison ($r = .60, p < .05$) correlated more strongly with Stress-Related Impression Management than did Relaxation Remorse ($r = .32, p < .05$). This again provided evidence that the subscales were unique, but did not provide direct evidence for a second-order factor. However, this was empirically tested in the longitudinal analyses.

Convergent and Discriminant Validity. Convergent and discriminant validity hypotheses focused on the three internal core dimensions of the Stress Badge measure. Convergent validity was examined by including all of the internal subscales of the Stress Badge measure in a CFA with workaholism, perfectionism, psychological detachment, relaxation experiences, and general social comparisons. Social desirability and the PANAS were also included as measures of discriminant validity.

In modeling the Stress Badge subscales, Stress-Related Impression Management, and the measures of convergent and discriminant validity, the LM test indicated that one of the items from the Stress-Related Social Comparison subscale (*I feel accomplished when I compare myself to those who do not have a high amount of work to do in their jobs*) was a cross-loading item. This item was the same variable that had a somewhat lower loading in the initial CFA in Study 1 (.68). Therefore, this variable was removed from further analyses. After fixing the error variance of the convergent and discriminant validity items that were modeled as composite variables, the model with the six variables used for convergent validity, three variables for discriminant validity, three factors from the internal dimensions of the Stress Badge measure, and Stress-Related Impression Management, exhibited acceptable fit $SB \chi^2 (216) = 502.95, p < .001, CFI = .92, RMSEA = .035 (.031, .039), SRMR = .029$.

As expected, there were moderate correlations between Stress as Achievement and the two dimensions of workaholism ($r = .40, p < .05$ working excessively; $r = .43, p < .05$ working compulsively) and with perfectionism ($r = .40, p < .05$). These correlations provided support for Hypothesis 1a. Relaxation Remorse was also related to workaholism ($r = .76, p < .05$ working excessively; $r = .69, p < .05$ working compulsively) and was associated with fewer relaxation activities ($r = -.58, p < .05$) and lower psychological detachment ($r = -.56, p < .05$). These correlations provided support for Hypothesis 2a. Lastly, Stress-Related Social Comparison was positively related to general social comparisons ($r = .58, p < .05$), supporting Hypothesis 3a.

As evidence of discriminant validity, all measures exhibited low correlations with social desirability (Stress as Achievement $r = -.06, p < .05$; Relaxation Remorse $r = .04, p > .05$; Stress-Related Social Comparison; $r = .09, p < .05$). The measures also exhibited small correlations with positive affect (Stress as Achievement $r = .26, p < .05$; Relaxation Remorse $r = .10, p < .05$; Stress-Related Social Comparison; $r = .11, p < .05$) and negative affect (Stress as Achievement $r = .09, p < .05$; Relaxation Remorse $r = .24, p < .05$; Stress-Related Social Comparison; $r = .15, p < .05$). Stress as Achievement did demonstrate a slightly larger correlation with positive affect and Relaxation Remorse exhibited a larger relationship with negative affect. Thus, these variables may be influenced by (or influence) affect to some degree. Nonetheless, these correlations were not so high as to raise concerns that the responses on the measure were simply a result of one's general affect, with 93 to 96% of the variance still being unshared.

In sum, these relationships provided support for Hypotheses 1b, 2b, and 3b, particularly that the responses to the items were not a result of socially desirable responses and did not appear to be substantially influenced by affect. The correlations among measures of convergent and discriminant validity are summarized in Table 7.

Individual Correlates and Demographic Differences. There were some small, but significant, correlations among the three internal dimensions and Stress-Related Impression Management with age and hours worked. Age was negatively related to Stress as Achievement ($r = -.18, p < .05$), Stress-Related Social Comparison ($r = -.19, p < .05$), and Stress-Related Impression Management ($r = -.11, p < .05$). Hours worked per week were positively related to Relaxation Remorse ($r = .11, p < .05$). There were no

significant differences in responses on the subscales based on ethnicity or education. The only significant demographic difference was that the mean on the Relaxation Remorse subscale was higher for women, $t(1075) = -6.33, p < .01$.

Longitudinal Results

Stress Badge Measure Stability. After Time 2 data were collected, a CFA was conducted to again confirm the factor structure of the three internal Stress Badge dimensions and Stress-Related Impression Management. Robust estimation methods were used upon evidence of high multivariate kurtosis (Mardia's Coefficient = 200.72). A four-factor structure exhibited good fit to the data, $SB \chi^2(203) = 607.84, p < .001, CFI = .97, SRMR = .05, RMSEA = .05, 90\% CI (.047, .056)$.

Next, the Time 1 and Time 2 responses to the Stress Badge measure were correlated with one another to determine how stable the Stress Badge dimensions were across the two measurement occasions. The model with the four factors represented at Time 1 and Time 2 (eight factors in total) exhibited acceptable fit, $SB \chi^2(874) = 2141.93, p < .001, CFI = .95, SRMR = .05, RMSEA = .04, 90\% CI (.042, .046)$. Correlations among all of the sub-scales at Time 1 and Time 2 are displayed in Table 8. The correlations between the subscales at Time 1 and Time 2 were moderate to high: Stress as Achievement, $r = .74, p < .05$; Relaxation Remorse, $r = .69, p < .05$; Stress-Related Social Comparison, $r = .64, p < .05$; and Stress-Related Impression Management, $r = .71, p < .05$. Thus, it appears that approximately 40 to 48% of the variance in these sub-scales is stable over time, while the remaining half of the variance may be explained by situational influences and error.

As additional information on the stability of the Stress Badge measure, paired samples t-tests confirmed that the mean responses on the Stress as Achievement, Stress-Related Social Comparison, and Stress-Related Impression Management subscales at Time 1 and Time 2 were not significantly different from one another. However, the mean responses on the Relaxation Remorse subscale were higher at Time 1 ($M = 4.01$, $SD = 1.73$) compared to Time 2 ($M = 3.96$, $SD = 1.66$), $t(751) = 2.45$, $p < .05$. In sum, it appears that individual responses to the Stress Badge measure remain somewhat consistent over time, providing partial support for Hypothesis 4. However, there is still unexplained variance that may be attributed to situational influences, particularly influences that could further explain mean differences in Relaxation Remorse.

Predictive Validity. Structural Equation Modeling was used to test Hypotheses 5a-9a, concerning the relationships between the internal Stress Badge dimensions at Time 1 and outcome measures at Time 2. These relationships were first modeled using only the Stress Badge construct (modeled as the higher order factor) and the outcome measures. Again, analyses using the matched data set relied on robust estimation, as there was evidence of high multivariate kurtosis (Mardia's Coefficient = 730.17).

Based on the initial analyses conducted on the predictive validity measures (reported in the measures section), performance, depression symptoms, relationship quality, and work-family conflict were modeled as latent factors, while anxiety and physical health symptoms were modeled as composite variables. Because the work-family conflict scale only contained two items, the errors of those items were constrained to be equal. Performance and work relationship quality were modeled as higher-order

factors made up of the respective subscales in order to increase the parsimony of the model. Spouse relationship quality was modeled as separate from relationship quality within the workplace. The LM test did not recommend adding any direct links between the first-order factors for performance or work relationship quality and the predictor variables.

The Stress Badge was modeled as a second order factor in relation to the outcome variables. Again, the Stress-Related Social Comparison item that emerged as a cross-loading item in the analyses of the Time 1 data was not included. This model exhibited acceptable fit $SB \chi^2 (1341) = 2275.80, p < .001, CFI = .94, SRMR = .07, RMSEA = .04, 90\% CI (.035, .040)$. Further, the LM test did not suggest any direct paths between the three internal Stress Badge subscales and the outcome variables that would substantially improve the model fit. Thus, it appeared that the second-order Stress Badge construct adequately carried the variance from the subscales to the outcome variables.

The standardized and unstandardized regression coefficients for the total effects model are depicted in Figure 6. In examining the path coefficients, the Stress Badge exhibited a positive linear relationship with job performance, $B = .12, SE = .03, p < .05, r^2 = .04$. In terms of health outcomes, the Stress Badge was positively related to general experiences of anxiety, $B = .10, SE = .03, p < .05, r^2 = .03$, and depression symptoms, $B = .09, SE = .04, p < .05, r^2 = .02$. Thus, Hypothesis 6a was supported. The Stress Badge was not significantly related to physical health symptoms $B = -.31, SE = .19, p > .05$. Thus, Hypothesis 7a was not supported.

In terms of socially-related outcomes, the Stress Badge was associated with higher work-family conflict, $B = .16$, $SE = .07$, $p < .05$, $r^2 = .03$. However, there was a positive relationship between the Stress Badge and relationship quality within the work domain (co-workers and supervisor), $B = .19$, $SE = .07$, $p < .05$, $r^2 = .03$. The relationship between the Stress Badge and spouse relationship quality was not significant, $B = -.10$, $SE = .06$, $p > .05$. Thus, it seems that individuals higher on the Stress Badge construct may experience more work-family conflict, but it does not appear that the quality of their relationships with important others are significantly harmed. In fact, working relationships may be better for those higher on the Stress Badge. These results provide support for Hypothesis 8a, but do not support Hypothesis 9a.

Non-Linear and Moderation Effects. After examining the total effects model discussed above, the model was adapted to include the quadratic form of the Stress Badge measure to predict performance (Hypothesis 5a), as well as the interaction term for Stress-Related Impression Management and the Stress Badge predicting work-family conflict and relationship quality (Hypothesis 12a-b). The fit of the model remained acceptable when the two additional predictors were added, $SB \chi^2 (1966) = 3289.21$, $p < .001$, CFI = .93, SRMR = .07, RMSEA = .04, 90% CI (.035, .049). When the latent variable (represented by the composite squared means of the three-subscales) to represent the quadratic predictor was added, the linear relationship between the Stress Badge and performance did remain significant, $B = .12$, $SE = .06$, $p < .05$. The quadratic relationship was also significant, $B = .15$, $SE = .05$, $p < .05$. Adding the quadratic variable increased the R^2 from .044 in the total effects model (only including the linear predictor) to .086

($\Delta R^2 = .04, p < .05$). However, this relationship was opposite the hypothesized direction. It was predicted that performance would be highest for those average on the Stress Badge. As depicted in Figure 7, the lowest performance was reported for individuals average on the Stress Badge, while performance was higher for those high or low on the Stress Badge construct.

The latent interaction term between Stress-Related Impression Management and the internal Stress Badge dimensions (modeled as the three product terms loading onto a factor) was also included in the model. When including Stress-Related Impression Management and the interaction term, the main effect of the Stress Badge was not significant in predicting work-family conflict, work relationship quality, or spouse relationship quality. Stress-Related Impression Management had a significant main effect on work-family conflict, $B = .21, SE = .06, p < .05$; the relationships with work and spouse relationship quality were not significant.

Results indicated that there was a significant interaction between the Stress Badge and Stress-Related Impression Management in predicting work-family conflict, $B = -.12, SE = .04, p < .05$. The simple slopes differed from one another (as indicated by the interaction), though none of the slopes were significantly different from zero. As Figure 8 displays, those high in Stress-Related Impression Management overall reported the highest levels of work-family conflict, yet the slope of the relationship between the Stress Badge and work-family conflict was negative. Alternatively, the slope was positive for those low on Stress-Related Impression Management. It is also interesting to note that there was little difference in reports of work-family conflict for those high on the Stress

Badge based on differences in Stress-Related Impression Management, while there was more variation at the low end of the Stress Badge. This relationship is opposite to the prediction of Hypothesis 12a, that the steepest positive slope would be for those high in Stress-Related Impression Management.

Stress-Related Impression Management also moderated the relationship between the Stress Badge and spouse relationship quality, $B = .10$, $SE = .04$, $p < .05$. Again, the simple slopes were not significantly different from zero, but were different from one another. As depicted in Figure 9, the slope of the relationship between the Stress Badge and spouse relationship quality was positive for those high on Stress-Related Impression Management, but negative for those average or low on Stress-Related Impression Management. Lastly, there was not a significant interaction in predicting relationship quality in the work domain. Given the simple slopes that did not align with the predicted direction for relationship quality (that being high in Stress-Related Impression Management would exacerbate the negative relationship between the Stress Badge and relationship quality), and the non-significant interaction in predicting work relationship quality, Hypotheses 12b was not supported.

Incremental Effects of the Stress Badge. Hypotheses 5b-9b concerned whether the Stress Badge would predict incremental variance in the outcome variables beyond convergent validity measures. These variables were again modeled as mean variables with the error variance fixed to account for unreliability in the items, with the exception of recovery experiences being modeled as latent variables. To uniquely understand how the Stress Badge contributes over each of these measures, four models were tested.

Specifically, the Stress Badge in the form of the second-order factor was related to outcomes, combined with: the two workaholism subscales in Model 1; perfectionism in Model 2; psychological detachment and relaxation activities in Model 3; and general social comparisons in Model 4. Physical health symptoms and spouse relationship quality were omitted as outcomes because the Stress Badge was not significantly related to either outcome. Thus, Hypothesis 7b was not examined and only work relationship quality was examined for Hypothesis 9b. A summary of the results is included in Table 9.

In Model 1, which included the Stress Badge and the two workaholism subscales, the Stress Badge remained a significant predictor of performance and anxiety, but did not remain a significant predictor of depression, work-family conflict, or relationship quality with one's spouse or within work relationships. It is important to note that these results seem to be attributable to suppression effects. Evidence of suppression (MacKinnon, Krull, & Lockwood, 2000) can be seen through the increases in the unstandardized coefficients for the Stress Badge, as well as changes in the direction of the relationships (e.g., positive to negative for performance and work relationship quality). When modeled as the higher-order Stress Badge construct, the correlation with the working excessive and working compulsively subscales were $r = .88$ ($p < .05$) and $r = .85$ ($p < .05$), respectively. Thus, it seems that when using the Stress Badge higher-order factor, substantially more variance is shared with workaholism, with much less variance (23 – 28%) remaining unshared.

In Model 2 comparing the Stress Badge and perfectionism, perfectionism was correlated with the Stress Badge at $r = .63$, $p < .05$. Perfectionism was only significantly

related to the outcome of performance. The Stress Badge did not remain a significant predictor of performance when accounting for perfectionism. The Stress Badge remained significant in predicting depression, anxiety, and work-family conflict. Both perfectionism and the Stress Badge were non-significant in predicting relationship quality within the work domain.

The Stress Badge construct was compared to recovery experiences in Model 3. The correlation between the overall Stress Badge and psychological detachment and relaxation activities were $r = -.56, p < .05$, and $r = -.58, p < .05$, respectively. The two recovery experiences subscales were correlated at $r = .69, p < .05$. Psychological detachment and relaxation activities were both related to all of the outcome variables, except work-family conflict. The Stress Badge remained a significant predictor of work-family conflict, anxiety, and depression. However, the relationships with work relationship quality and performance did not remain significant. Thus, it seems that the Stress Badge may have the most incremental value over recovery experiences in predicting health outcomes. Again, these reports should be interpreted with caution as the coefficients for the Stress Badge increased when adding the recovery experiences variables into the model, thus suggesting potential suppression effects.

Finally, in Model 4 the Stress Badge was compared to general social comparisons. In this model, the Stress Badge and general social comparisons were correlated at $r = .67, p < .05$. General social comparisons were associated with higher depression symptoms, anxiety symptoms, and work-family conflict. The Stress Badge remained significant in predicting performance, but did not remain a significant predictor of depression, anxiety,

work-family conflict, or work relationship quality. Therefore, more general tendencies to compare oneself to others may be more impactful on mental health and some indicators of wellbeing, while the overall Stress Badge may have a stronger impact on performance.

In sum, there was only partial support for Hypothesis 5b, where the Stress Badge only predicted performance beyond general social comparisons and workaholism, with likely suppression effects influencing the incremental relationship beyond workaholism. Hypothesis 6b also received partial support, with the Stress Badge predicting depression and anxiety beyond the effects of perfectionism and recovery experiences, as well as workaholism for anxiety only. Lastly, there was partial support that the Stress Badge may predict work-family conflict beyond perfectionism and recovery experiences. Again, these relationships were potentially influenced by suppression, and thus should be considered with caution. Hypothesis 9b concerning work relationships was not supported.

Mediated Relationships. In addition to understanding the total relationships between the Stress Badge and outcome measures, the present study also proposed that perceived stress and recovery experiences (i.e., psychological detachment and relaxation activities) may explain the relationships between the Stress Badge and outcomes. In each model the Stress Badge items were assessed at Time 1 and the mediators and outcomes were assessed at Time 2.

Recovery experiences were first examined as a potential mediator. To increase parsimony in the model, psychological detachment and relaxation activities were modeled as a higher-order factor representing recovery experiences. The LM test did not suggest any direct paths be modeled between the first order subscales and the predictors

or outcomes. When recovery experiences were modeled as a mediator, the model exhibited acceptable fit, $SB \chi^2 (1790) = 2874.02, p < .001, CFI = .94, SRMR = .07, RMSEA = .04, 90\% CI (.032, .037)$. In terms of the 'a' and 'b' path, the Stress Badge was associated with fewer recovery experiences ($B = -.54, SE = .07, p < .05$), and recovery experiences were associated with lower mental health symptoms and work-family conflict, but higher relationship quality and physical health symptoms. Recovery experiences were not significantly related to performance. These coefficients are displayed in Figure 10.

The test of indirect effects, indexed by the Sobel Test, indicated that there was a significant indirect effect of the Stress Badge through a negative relationship with recovery experiences on the outcomes of: anxiety, $Effect = .16, SE = .04, z = 4.45, p < .05$; depression symptoms, $Effect = .15, SE = .04, z = 4.02, p < .05$; physical health symptoms, $Effect = -.78, SE = .18, z = -4.44, p < .05$; work-family conflict, $Effect = .23, SE = .06, z = 4.18, p < .05$; spouse relationship quality, $Effect = -.15, SE = .05, z = -3.07, p < .05$; and work relationship quality, $Effect = -.10, SE = .05, z = -2.03, p < .05$. The indirect effect on performance was not significant.

The second mediated model with perceived stress at Time 2 as the mediator exhibited acceptable fit, $SB \chi^2 (1394) = 2412.62, p < .001, CFI = .94, SRMR = .09, RMSEA = .04, 90\% CI (.036, .041)$. In terms of the 'a' and 'b' path, the Stress Badge was related to higher reports of perceived stress ($B = .13, SE = .04, p < .05$); perceived stress was related more mental health symptoms, higher work-family conflict, and lower

relationship quality and performance. Surprisingly perceived stress was associated with fewer physical health outcomes. These coefficients are displayed in Figure 11.

The Sobel Test, indicated that there was a significant indirect effect of the Stress Badge through positive relationship with perceived stress on all outcome variables: performance, $Effect = -.02, SE = .01, z = -2.25, p < .05$; anxiety, $Effect = .08, SE = .03, z = 3.16, p < .05$; depression symptoms, $Effect = .09, SE = .03, z = 3.09, p < .05$; physical health symptoms, $Effect = -.31, SE = .10, z = -3.13, p < .05$; work-family conflict, $Effect = .11, SE = .04, z = 3.10, p < .05$; spouse relationship quality, $Effect = -.07, SE = .03, z = -2.86, p < .05$; and work relationship quality, $Effect = -.07, SE = .03, z = -2.73, p < .05$.

In a final model both mediators were combined [$SB \chi^2 (1844) = 2973.74, p < .001, CFI = .94, SRMR = .07, RMSEA = .04, 90\% CI (.033, .037)$]. Because EQS estimates the pooled indirect effects, rather than the individual indirect effects, each indirect effect was calculated as the a path * b path. Further, z-values for the significance of each indirect effect were calculated as: $(a \text{ path} * b \text{ path}) / SE_{ab}$. SE_{ab} was calculated as the square root of $(b^2 * SE_b^2 + a^2 * SE_a^2)$. All indirect relationships through the mediator of perceived stress remained significant. All indirect effects through recovery experiences remained significant except for the outcome of work relationship quality and spouse relationship quality. The indirect effect on performance became significant in this model. This was an example of inconsistent mediation, given the indirect effect was not significant in the model only including recovery experiences as the mediator. The estimates of the indirect effects and the significance tests for these are summarized in Table 10.

CHAPTER EIGHT

DISCUSSION

In American culture, it seems a sentiment exists that having a high amount of work and having high amounts of stressors resulting from work is commonplace, and even a sign of status. This sentiment can be observed through everyday interactions, the media, and popular culture, that being highly “stressed” can be looked upon favorably. Some empirical models have captured ways stress can be perceived positively by an individual (e.g., stress enhancing mindsets, Crum et al. 2013; Challenge stressors, Cavanaugh et al., 2000) and constructs have also been developed to capture more negative, addictive attachments to work (e.g., Workaholism, Porter, 1996). However, no studies have captured the psychosocial underpinnings and potential mechanisms by which a high amount of stressors may be perceived as normal or even impressive. The present study was the first to begin to understand this phenomenon of stressors being perceived as honorable. Specifically, the goal of the study was to develop a Stress Badge measure, provide information on where the construct fits within the nomological network of existing constructs, and determine the impact that such a mindset may have on employee performance and health.

The Factor Structure and Stability of the Stress Badge

Building upon a pilot study conducted with a college student sample, two studies were conducted to provide evidence for the psychometric properties and validity of the Stress Badge measure. The results confirmed that the proposed construct consisted of four reliable and unique factors, with the factor structure confirmed in a small cross-

sectional employee sample, as well as at two time points with a larger employee sample. Three of these factors were conceptualized to be the core of the Stress Badge construct, representing internal perceptions of stressors as honorable. Those dimensions were Stress as Achievement, Relaxation Remorse, and Stress-Related Social Comparisons. A fourth external factor, Stress-Related Impression Management, was proposed to exacerbate the effects of the internal dimensions on outcomes social in nature.

In addition to information on the psychometric properties of the measure, the longitudinal sample provided evidence that the subscales remained relatively stable over time, with moderate to high correlations (ranging from .64 to .74) between Time 1 and Time 2 responses. The correlations suggest a large degree of consistency in participants' views of stressors as honorable. These correlations are similar levels to typical stability estimates of individual difference variables, such as self-esteem, which has exhibited correlations ranging from .50 to .70 over time (Trzesniewski, Donnellan, & Robins, 2003). However, other studies have reported a greater degree of consistency for constructs such as subjective wellbeing, which was reported to be over 70% consistent over several months (Eid & Diener, 2003). Some researchers have also suggested that stable individual differences examined over time would have correlations above .90 (Conley, 1984). However, these larger correlations would be estimated over extended periods of time; thus more than two measurement occasions would be necessary to determine if the Stress Badge could align with these higher standards.

While the stability of the responses on the Stress Badge measure is promising, the unshared variance in the responses is equally important to consider. The unshared

variance in responses indicates that situational factors may influence an individual's response to the Stress Badge measure to some degree. It would be interesting to determine what events or circumstances may affect responses or the disposition toward stressors overall. As an important example to consider in future research, several participants mentioned a need for more income motivating their responses to the Stress Badge items, particularly in relation to Relaxation Remorse. Information on situational or personal changes that influence responses to the Stress Badge measure over time could further be used in the development of intervention efforts.

Evidence of Convergent and Discriminant Validity

A second major goal of the studies was to fit the Stress Badge into the nomological net of existing constructs. In Study 2, the three internal subscales were related to, but distinct from, existing measures of workaholism, perfectionism, recovery experiences, and general social comparisons. That is, the three subscales correlated with related measures but the correlations were not high enough to suggest the new subscales were redundant with existing constructs.

Stress as Achievement was moderately correlated with workaholism and perfectionism. The moderate correlations support the proposition that Stress as Achievement goes beyond working excessively or desiring perfect work to viewing a high amount of stressors as impressive. Relaxation Remorse was also moderately correlated with workaholism. The uniqueness of both Stress as Achievement and Relaxation Remorse from workaholism can also provide support for the proposition that the new measure captures a more normative disposition toward stressors and relaxation,

versus the more addictive pattern of behavior discussed with workaholism (Porter, 1996; Schaufeli et al., 2008). Relaxation Remorse was also negatively related to psychological detachment and relaxation activities as expected. These relationships provided evidence that feeling remorse for relaxation does relate to lower recovery experiences. However, the unique variance demonstrates that Relaxation Remorse measures more than just the absence of recovery, but extends to a general disposition toward relaxation.

Third, Stress-Related Social Comparisons were moderately related to general social comparisons. These moderate correlations established evidence for convergent validity, that those who generally make a lot of social comparisons would be likely to compare their stress levels. However, the correlation was not so high as to be redundant with general comparisons. The specification of comparing stressor levels could be particularly informative for intervening in workplace settings if comparisons are high in a negative manner. Social comparisons have been noted to affect employees in complex ways, such as in employee's self-evaluations, perceptions of justice, or relationships with one another (Adams, 1965; Brown et al., 2007; Greenberg et al., 2007). The measure of Stress-Related Social Comparisons could provide more detailed information on stressors as a potential source of comparison for organizations if social comparisons seem to be a source of conflict or dissatisfaction among employees.

Each of the three subscales also demonstrated relatively low correlations with discriminant validity measures of social desirability, positive affect, and negative affect. These low correlations established evidence for discriminant validity, that the sub-scales were not related to measures to which they should not be related. Further, these results

suggest that the responses to the three sub-scales were not simply the result of one's general emotional disposition or a tendency to agree with socially desirable sentiments.

Predictive Validity and Incremental Effects

A primary assumption in the present study was that the Stress Badge could be beneficial in terms of performance, but harmful in relation to employee health and wellbeing. In line with this expectation, the Stress Badge was positively related to performance. In particular, there was support for a non-linear effect on performance; however, this effect was not in the expected direction. It was expected that the performance benefits of the Stress Badge would diminish at high levels. Contrary to this prediction, the lowest levels of performance were reported for individuals average on the Stress Badge scale, while on the high end of the Stress Badge measure rated their job performance highest. As for those high on the Stress Badge, it could be that these individuals are in fact very hard workers, capable of taking on a very high workload and completing it well. Alternatively, the high performance ratings could be strongly impacted by bias, given performance was self-rated (i.e., those that think that stress is impressive likely would rate themselves as good performers). Further, an individual high on the Stress Badge could genuinely view his or herself as a high performer, yet the individual's boss and co-workers may have different views.

These unexpected findings, along with inconsistencies in the literature between maladaptive attitudes (e.g., workaholism) and work performance (Birkeland & Buch 2015; Shimazu et al., 2010; 2012; 2015), highlight the complexities involved in understanding how such traits may truly influence work performance. Very sensitive

performance measures may be needed to gain clarity on these relationships. Given concerns with self-ratings exhibiting low correlations with ability (DeNisi & Shaw, 1977) and findings that ratings of performance can be highly impacted by the rating source (Hoffman, Lance, Bynum, & Gentry, 2010), an important extension of the present study would be to collect objective performance data if available, or ratings from multiple sources for comparison.

Contrary to my hypotheses, the Stress Badge was not significantly related to physical health outcomes in the total effects model; however, there was evidence of an indirect relationship with physical health through recovery and perceived stress. These mediated effects will be discussed later. The non-significant direct relationship could indicate that the Stress Badge may take a larger direct toll on psychological health, rather than physical health. It may be that an associated reduction in recovery or increase in actual stress is a necessary mechanism for the Stress Badge to affect physical health symptoms. It is important to also note, however, that the increment between the two surveys in the longitudinal study was rather short. Future studies should determine if more long-term direct relationships exist, particularly if one maintains the mindset of a high amount of stressors as honorable over the course of several months or years.

The Stress Badge was associated with general reports of both anxiety and depression symptoms. These relationships were expected in accordance with known tradeoffs between performance and health when working under high stress (Sonnentag & Frese, 2003). The relationships with mental health symptoms further align with the COR theory (Hobfoll, 1989) framework, that individuals may not sufficiently replenish

resources lost due to high amounts of stressors. While these results do provide evidence that the Stress Badge could be of concern for the mental health of employees, it is important to note that both measures of symptoms are self-report and do not indicate a clinical diagnosis. The anxiety measure in particular asked participants to indicate how often they typically experience more anxious feelings (Spielberger, 1983), rather than a clinical assessment of a Generalized Anxiety Disorder (GAD). Further studies including more objective measures of clinical diagnoses or even the use of Employee Assistance Programs could provide valuable information on whether the Stress Badge could be associated with documented mental health concerns.

The Stress Badge was associated with higher work-family conflict, as expected, and in line with prior research that has demonstrated that negative work-related attitudes, like workaholism, can be associated with higher work-family conflict (Taris et al., 2005; Ng et al., 2007). Further, there was a significant interaction between the Stress Badge and Stress-Related Impression Management in relation to work-family conflict. Those who reported engaging in high impression management behaviors tended to report higher work-family conflict. Further, the interaction provided interesting evidence that the relationship between viewing stress as honorable and the experience of work-family conflict may depend on how much the employee desires to make their stressors known. The nature of the interaction was intriguing, as the relationship between the Stress Badge and work-family conflict was slightly negative (though non-significant) for those high on impression management. This relationship could suggest that those high in impression management can still maintain balance, or could suggest that those high on impression

management and the Stress Badge may underreport work-family conflict, trying to maintain that they handle both spheres well.

The relationships between the Stress Badge and spouse and work relationships did not clearly align with the hypothesized predictions. While the Stress Badge was associated with higher reports of work-family conflict, the effect on relationship quality with one's spouse was not significant in the total effects model. It would be interesting to consider multi-source data to determine if individuals may not self-report low relationship quality; however, the spouse's experience may differ. Although there was not a main effect of the Stress Badge on spouse relationship quality, there was a significant interaction between Stress-Related Impression Management and the Stress Badge. Again, this relationship was somewhat perplexing, in that there was a slightly positive slope for the relationship between the Stress Badge and spouse relationship quality for those high on impression management. This may suggest that those high on the Stress Badge and impression management can either handle their workload well, or report more positive relationships than are actually experienced. Further, though the slope was positive, those high on Stress-Related Impression Management reported lower relationship quality across levels of the Stress Badge.

Regarding work relationships, there was a positive relationship between the Stress Badge and ratings of relationship quality with co-workers and supervisors. The positive relationship would suggest that individuals who see a high amount of stressors as impressive may interact well within work relationships. It could be that the Stress Badge is perceived as an asset in a coworker (e.g., that they are hardworking), thus improving

relationships. The moderating effect was not significant, nor was the main effect of Stress-Related Impression Management. Thus, it also does not appear that an individual's co-workers are noticeably bothered by Stress-Related Impression Management behaviors. Again, it would be of interest to examine multi-source data to determine if ratings of the relationship quality from the actual supervisor and/or co-workers would mirror the reports of the employee high on the Stress Badge construct. As a final consideration, those high on the Stress Badge could engage in these behaviors because it is normative within their work group. This possibility points to the need to examine potential Stress Badge climates among a work unit.

While the predictive analyses discussed provided support for relationships with performance, health, and wellbeing outcomes, the results obtained from the analyses of incremental effects were less definitive on the added value of the Stress Badge construct. While the subscales seemed to correlate at acceptable levels to be considered unique from convergent validity measures; however, analyses establishing incremental validity in relation to outcomes were not as strong. Many of the relationships between the Stress Badge and outcome variables seemed to be largely affected by suppression when including the convergent validity measures (MacKinnon et al., 2000). Potential suppression effects were particularly pronounced when considering the Stress Badge along with the workaholism subscales. These results suggest that while the second-order construct representing the Stress Badge seemed to carry the variance well from the subscales to the outcome variables, it may not allow for the demonstration of unique effects in comparison to other predictors. There may be more opportunities to find

meaningful effects using the subscales rather than the second order factor. While the approach of assessing the Stress Badge as a higher-order construct was parsimonious, and was not indicated to lose variance from the subscales in relation to outcomes, this approach may inevitably lose some information (Carver, 1989).

Carver (1989) noted that a higher order construct may be helpful when the construct is a “convenient summary for several subsidiary tendencies that contribute to it (p. 583)”. Capturing the pattern of behaviors characteristic of a “Stress Badge” was the intended goal of the primary analyses of the studies. Further, this approach was taken to provide a more global assessment of the Stress Badge construct as a whole. A more complete understanding of the subscales may be gained from a more detailed investigation of predictive relationships and incremental validity for each component of the Stress Badge. Future analyses using the submissions can further determine, as Carver (1989) notes, whether all of the subscales are equally informative and/or necessary to the overall Stress Badge measure. In addition, these subscales may be differentially useful depending on the context and the particular research question.

Mediating Mechanisms

As a final consideration, two potential mediators were examined as mechanisms by which the Stress Badge may influence performance, health, and wellbeing outcomes. Recovery experiences were a significant mediator of all relationships, with the exception of performance. Perceived stress was a significant mediator of all relationships. When considered together, the majority of these indirect relationships remained significant. These relationships provide strong support for the COR framework (Hobfoll, 1989)

explaining the effects of the Stress Badge. That is, individuals may experience negative outcomes from the Stress Badge because they take on too many demands in relation to available resources (through high perceived stressors) or because they do not sufficiently replenish their resources lost in times of high stress through recovery experiences. These relationships provided evidence that individuals high on the Stress Badge likely take on too many stressors, because they see a high amount of stressors as impressive. Further, those high on the Stress Badge may not seek sufficient recovery experiences, likely because they see a full workload as more impressive than relaxation, which results in feelings of guilt or a desire to maintain productivity. Understanding these mediating mechanisms may be particularly important in designing interventions that promote recovery and reasonable stressor levels. It may be important to discuss the benefits of recovery, as well as seeking sufficient resources (i.e., rest, support from co-workers) to cope with high demands when inevitable.

It is important to note that an exception to these relationships was the unexpected relationships with physical health symptoms, where recovery experiences were associated with higher symptoms and perceived stressors were associated with fewer symptoms. These relationships may be a result of errors in measurement, or indicative of reverse causation. For example, those with high stressors may take efforts to maintain their physical health and those with high recovery may be responding to physical health concerns. These interpretations, however, are speculative and far from definitive. More detailed information on these relationships should be gained through additional research, particularly using assessments of changes in symptoms rather than just the presence of

symptoms at a later time point. Simply assessing the physical health symptoms without a baseline level of symptoms could be a partial explanation for the unexpected findings in the present study.

Practical Implications

The present study provided initial support for a measure of experiencing a high amount of stressors as honorable and impressive. The study provided several important empirical contributions by testing the psychometric properties of the Stress Badge measure, relating it to existing measures, and examining relationships with performance, health, and wellbeing. The study provides evidence that those high on the Stress Badge may be high performers (as self-rated), but there are potential negative consequences for employee health and wellbeing. These findings suggest that employers should be careful not to assume that although an employee is handling a lot of work and performing well, that they are free of risk. Employees high on the Stress Badge may take on much work, and even boast in the amount of work they can do, yet be struggling with health concerns and detriments to their home life through increased work-family conflict. As mental and physical health problems associated with high stress can be costly to organizations (Miree, 2007), this represents a concern that should not be taken lightly.

Future studies should continue to build on the findings of the present study to determine what factors may be points of intervention for the Stress Badge construct. The present study suggests that individuals high on the Stress Badge may take on high amounts of stressors and not seek sufficient recovery. Thus, organizational practices could work to encourage using time off for recovery, as well as encourage a collaborative

work environment where individuals can seek help from peers or supervisors when their work demands become too high. It could be of interest to assess the dimensions of the stress badge in conjunction with more commonplace relaxation or stress management trainings. Such assessments could provide information on whether these types of interventions can not only be successful in teaching techniques to control responses to stressors, but also whether these trainings can address the potentially more deeply rooted beliefs that relaxation is unnecessary or stressors are impressive.

On a larger scale, the results of the present study could have important societal implications. If these results are replicated and continue to show that the perceptions of high amount of stressors as normative are damaging to health and wellbeing, public health initiatives could be increased to support healthy views of stress. Our culture and media are filled with messages that important people are busy and busy people are stressed. Thus, a larger initiative would need to take place to see more examples of individuals who have healthy views of stressors, in balance with a value on recovery, in order to create new norms. For example, social values of recovery and balance would have to be more pronounced than values of busyness or productivity, as are common in the media and in higher roles within organizations. Some evidence has been provided that changing social norms around a given behavior may be important in producing lasting change (e.g., Ridout & Campbell, 2014; Schultz, Nolan, Cialdini, Goldstein, Griskevicius, 2007).

Limitations and Future Directions

The present study was the first investigation of the perception of a high amount of stressors as honorable. While the study had strengths through the use of multiple samples and a longitudinal design, there are several limitations that highlight directions for future research. First, the present study had the benefit of using a representative sample from a variety of occupational settings; however, there could be nuances in studying employees in unique employment contexts. While there is a benefit of generalizability in using an MTurk sample, who tend to be a diverse sample (Behrend et al., 2011; Paolacci & Chandler, 2014), evidence for practical interventions may be obtained through studies with more homogeneous occupational groups. Studies with employees who may be likely to have a high workload and take on a “Stress Badge” mentality would be important to consider. For example, healthcare personnel, managers, or employees in high risk occupations (e.g., police officers, firefighters) could be susceptible to justifying and feeling proud of exceptionally high levels of stressors. Studies should consider if a Stress Badge mentality would be more or less detrimental in these contexts.

Second, the data collected in this study were all self-report. While this is an optimal way to assess many of our constructs, focused on employee’s personal perceptions, future researchers are encouraged to seek more objective reports of performance, health, and wellbeing. Of particular interest, the measure of performance was self-reported, which is likely associated with a high level of bias and range restriction. Future studies would benefit from incorporating multi-source data from supervisors and/or peers to address several research questions to build on the existing

findings. For example, studies could examine whether the Stress Badge is associated with larger discrepancies between supervisor/peer reports of performance and an employee's personal performance perceptions. Employees who are proud of high levels of stressors may either be favored by others (i.e., because they take on a lot) or may be seen negatively if they take on too much and cannot complete tasks or are overly competitive. Future studies could use objective measures of health including doctor's visits, missed days at work, or even physiological indicators of health (e.g., blood pressure; heart rate variability).

Third, our study offered a strong design feature of separating measurement occasions to reduce concerns about common method variance (Podsakoff et al., 2003). However, a full panel design with all variables assessed at Time 1 and Time 2 was not used. Our primary goal was to establish evidence of relationships between the Stress Badge measure and outcome measures of health and wellbeing. Further studies could examine how the Stress Badge may be associated with changes in health and wellbeing by controlling for baseline reports of symptoms at Time 1 in predicting symptoms at Time 2. Future studies could also statistically control for common method variance (Podsakoff et al., 2003), even comparing different methods of assessing common method variance through a common method factor or using general measures, like social desirability.

Beyond these research questions discussed in the context of the limitations, findings of the present study offer ample opportunity to further knowledge of the Stress Badge construct. A primary research question would be whether there are unit-level

effects of the Stress Badge measure. Prior studies have found evidence of competitive climates (Keller et al., 2016) in workplaces. It may also be likely that work groups form norms of competition around stressor levels or that relaxation is unproductive.

Researchers should examine the possibility for such unit-level effects among employees embedded within cohesive work groups or departments.

In the present study, the focus was on individual perceptions of stressors as impressive or normal. In future studies, an individual's perceptions of the expectations of others (e.g., supervisor, co-workers) should also be considered in relation to health and wellbeing. For example, if a supervisor continually rewards and praises a worker for taking on high amounts of stressors, does this lead to a pattern of believing a high amount of stressors is necessary for positive appraisals? Thus, the source of an individual's behavior to take on excessive stressors and not engage in relaxation may be a factor of others, more so than their personally held beliefs.

While there was evidence in the longitudinal study that responses to the Stress Badge measure across the two months were relatively stable, there was still substantial variance unaccounted for between the two time points. Research is needed to understand what intervening events or situations may account for the changes in the Stress Badge dimensions. In Study 1, correlations were examined with several individual difference variables. Yet, these correlations were generally small. Therefore, there are likely other individual differences or situational characteristics that may be stronger predictors of exhibiting the Stress Badge characteristics. It would be particularly beneficial to use daily diary studies and experience sampling methodologies to capture how events or situations

may change one's perceptions of stressors as honorable or impressive. Further, these in-depth studies could provide exceptionally interesting information on how one is affected by stress-related comparisons "in the moment" (e.g., does it harm one's self-confidence when another employee talks about being more stressed; do they feel impressive when talking to their supervisor about their high amount of stress).

Diary studies or experience sampling could also incorporate a greater variety of recovery measures. The present study assessed recovery experiences that occur in the evening, during off-work time. However, it is important to also understand whether those high on the Stress Badge may also avoid taking short breaks during the workday, which could improve (or simply not harm) productivity (e.g., Dababneh, Swanson, & Shell, 2001) but be beneficial for wellbeing. Considering the multiple avenues of recovery during and outside of the workday could provide necessary information on viable points of intervention.

Conclusion

As societal norms grow to accept a high amount of stressors, busy schedules, and long work hours as an expected part of life, it is important to understand how individuals may begin to view continually being subject to a high amount of stressors as honorable. The present study developed a measure to understand this sentiment of stress as a badge of honor, finding that those high on this disposition may experience negative health and wellbeing outcomes. Extensions of the present study can be used to understand the complex relationships that may exist within this proposed construct and in relation to other performance, health, and wellbeing outcomes, as well as how to develop

interventions that can help employees adopt healthy views of stress, and thus thrive in their work environments and their personal lives.

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Table 1
Model comparisons of confirmatory factor analyses in Study 1.

Model	SB χ^2	df	CFI	RMSEA	90% Confidence Interval		SRMR	SB χ^2 Difference Compared to Model 5
					Lower	Upper		
Model 1: One factor	2447.70**	377	.49	.15	.14	.15	.14	2251.91**
Model 2: Two factors ^a	1873.26**	376	.64	.13	.12	.13	.13	1660.39**
Model 3: Three factors ^b	898.27**	374	.87	.08	.07	.08	.09	633.47**
Model 4: Four factors	635.04**	371	.94	.05	.05	.06	.06	368.59**
Model 5: Four-Factors (short version)	265.55**	183	.97	.04	.03	.05	.05	--

** $p < .001$; $N = 248$.

^a Internal dimensions of Stress as Achievement, Relaxation Remorse, and Stress-Related Social Comparison modeled as one factor, Stress-Related Impression Management modeled as a separate factor.

^b Stress as Achievement and Relaxation Remorse modeled separately, Stress-Related Social Comparison and impression management combined as one factor.

Note: A chi-square difference tests comparing each of the models to the original four-factor structure (Model 4) generated negative values, as neither fit the data well enough.

Table 2

Four-factor model confirmatory factor analysis results in Study 1.

	CFA Factor loadings	
	Original Four- Factor Model	Shortened Four-Factor Model
<i><u>Stress as Achievement</u></i>		
I assume that individuals with high amounts of work to do must be important.	.83	.84
Having a high amount of work is an important component to achieving goals.	.82	.81
I tend to think people who have a high amount of work are impressive.	.79	.81
Having a high workload makes it apparent that I'm successful.	.78	.79
I admire people who have a very high workload.	.75	.76
Other people will think I'm successful if I have a high workload.	.72	.72
Having a lot to do is a necessary part of working hard.	.71	.68
It is difficult for people to achieve great things without experiencing a high workload.*	.65	--
Part of being a successful person is accomplishing tasks under a high workload.	.65	--
People who are high achievers must frequently endure high amounts of work.	.64	--
<i><u>Relaxation Remorse</u></i>		
Relaxing often makes me feel bad because I feel I am wasting time when I should be doing something productive for work.	.94	.94
When I try to relax, I feel like I should be doing work instead.	.94	.94
Relaxing makes me feel guilty because there is always something else I could be doing for work.	.91	.91
Relaxing is difficult for me because there are always more important things I need to do.	.83	.83
Relaxing when I have other things to do for work makes me feel guilty.	.78	.78

Table 2 (cont'd)

	CFA Factor Loadings	
	Original Four-Factor Model	Shortened Four-Factor Model
<i>Stress-Related Social Comparison</i>		
I look to my co-workers to determine if my workload is high enough.	.77	.79
If I want to know if I'm under a high enough workload, I look to those around me.	.75	.78
I feel accomplished when I compare myself to those who do not have a high amount of work to do in their jobs.	.70	.69
I pay close attention to how much work I do, compared to those around me.	.68	.71
When my co-workers tell me how much work they have to do, it often makes me feel like my work ethic is inadequate.*	.65	--
When my co-workers tell me how much work they have to do, it often makes me feel like I am not doing enough.	.63	--
I often get bothered when friends with easier jobs think they have more work to do than me.	.62	--
<i>Stress-Related Impression Management</i>		
I list off all my tasks to my coworkers so they know my workload is high.	.88	.89
I incorporate how much work I have to do into conversations with my co-workers so they know I am working hard.	.86	.86
I publicly compete with my co-workers about the amount of work I have to do (e.g., by saying I have more work than them).	.80	.79
I give people a rundown of my busy schedule so they know I am working hard.	.80	.80
When my co-workers tell me about their workload I feel competitive because I need to make sure they're aware I have just as much work to do.	.79	.79
I sometimes exaggerate how much I work to my co-workers.	.68	--
When co-workers tell me how much they work, I let them know I am just as busy with work.	.58	--

* Item was indicated as a potential cross-loading item using the LM test

Table 3

Descriptive statistics and correlations among factors in Study 1.

	Mean	SD	1	2	3	4
1. Stress as Achievement	4.33	1.26	(.91 / .77)			
2. Relaxation Remorse	3.94	1.68	.39	(.94 / .88)		
3. Stress-Related Social Comparison	3.66	1.38	.56	.40	(.83 / .74)	
4. Stress-Related Impression Management	2.47	1.27	.42	.28	.58	(.91 / .83)

* $p < .01$. $N = 248$.*Notes:* The diagonal contains (Cronbach's alpha / Square root of the Average Variance Extracted).

Table 4

Summary of qualitative responses to Stress Badge items in pilot study.

Dimension	Theme	Sample Quotes
Stress as Achievement	Agreement - <i>Successful people are busy</i>	<p>"Successful people always seem to be busy; they either make themselves that way, or it is a consequence of being successful."</p> <p>"I feel that the more you work, the more successful you are. If you are busy then you are able to accomplish many things."</p> <p>"While I believe that there is a lot of 'pretending to be busy' in the working world, and that this ultimately leads to wasted time, I also believe that success and achievement inevitably mean high amounts of expended effort."</p>
	Agreement - <i>High workload necessary to appear successful</i>	<p>"Even though it's unnecessary to have a high work load to work hard, people will perceive you as a hard worker if you seem busy."</p> <p>"Being busy in this world gives you status. When you effectively work through a huge workload it makes you impressive and important. People will respect you because of your hard work. This is how I have gained recognition in my workplace."</p> <p>"In my past experiences a high workload seemed highly valued. People who weren't always super busy are seen as lazy or not good at their job."</p>
	Agreement - <i>Workload reflects merit / dependability</i>	<p>"If lots of work is put on you then it shows you are depended upon and relied upon. It means to me that the company obviously has faith in you that you can get it done."</p> <p>"People that are busy are obviously doing something right if they are being trusted with a high workload. They must have proven themselves in some capacity in order to be delegated a substantial amount of work..."</p>
	Neutral - <i>Not necessarily successful if busy</i>	<p>"You can be successful without working very hard, but working smart. A high workload can mean you are good or that you are bad and slow..."</p> <p>"Just because a person does a lot of work does not mean that they are good at what they do or that they are successful. To determine a successful person, you need to look at the quality of their work and how they accomplish completing their work..."</p>
	Disagreement - <i>Unrelated, or opposite</i>	<p>"I don't think the two are related. You can be successful without always being busy."</p> <p>"It is more important to work "smart" than to work hard. Efficient processes cut down work load without affecting output."</p>

Table 4 (cont'd)

Dimension	Theme	Sample Quotes
Relaxation Remorse	Agreement - <i>Remorse experienced</i>	"I never really have downtime so when I relax a lot of times I feel bad cause there are so many other things that I can be doing with my time" "I feel guilty whenever I try to take a break. I could not finish my 15 minutes break allowed. I feel I need to get back to my work." "Although it's within my right to use my free time however I want. I still feel guilty if I'm not using it productively."
	Somewhat - <i>Relaxation is a reward</i>	"There are times when I am relaxing and I think about how hard I worked, so I feel like I deserve that time to relax." "At work I feel I deserve my breaks because sometimes I don't get one, so there's no room for guilt when I take a break."
	Disagreement - <i>Relaxation is necessary</i>	"Relaxation is a necessary part of working hard. If you don't relax occasionally, you burn yourself out, and become useless to yourself and your employer." "Taking time to relax is a good thing. I work very hard and when I get home I like to relax. There is no guilt for me in relaxing. I feel it makes me a more productive person when I take time to relax from my work."
	Disagreement - <i>Low concern for work</i>	"I don't live to work, I work to live" "Although its true that time spent relaxing could be devoted to work that would probably advance my career, I am not particularly devoted to my career and think it is as important or more so to devote time to things outside work from family to personal interests and growth."
	Other - <i>Situation inhibits relaxation</i>	"I need money right now so any time that I'm not working seems like a waste of time to me." "I wouldn't work on MTurk in addition to my primary job if I had a choice in the matter; my financial and job insecurity always leaves me feeling that I should be doing something more to provide myself with better stability in the long run. As such, if I'm not spending my free time trying to earn extra money or in some form of educational or professional pursuit, I end up feeling like I'm wasting my time."

Table 4 (cont'd)

Dimension	Theme	Sample Quotes
Stress-Related Social Comparison	Agreement – <i>Compare and want to be the hardest worker</i>	<p>“I am an overachiever and I have a really high opinion of myself so I like to see that I am doing a lot better than other people. It probably makes me a narcissist but I always turn to other people to make sure that I’m doing more work than they are because then it makes me look better over the long-term that I’m doing everything better than my coworkers.”</p> <p>“When I see the managers around me putting in 14 hr work days I feel like I don’t do enough. I feel this even when I work harder than my colleagues. I always try and strive to work harder than the others.”</p>
	Agreement – <i>Compare and don't like when others think they are doing more</i>	<p>"I do get bothered when people act as though my job is 'easy' when I know most people could not hang being a cook."</p> <p>"I know my coworkers are just as busy as I am so I feel just as accomplished as them. As for people in other divisions, I am often annoyed at how busy they claim to be when I know darn well they are just sitting around doing nothing."</p> <p>“It is laughable when people at my job complain about their workload and how much work they have to do because it's never as much as I have to do."</p>
	Disagreement - <i>Others work is not comparable</i>	<p>"My job is different than my coworkers. We all play our integral parts in the organization and they're all different. I also do not compare myself to others, at all. Others are not me."</p> <p>"My co-workers have different job responsibilities and job titles than I do. I can't judge how much work they have as to how much I should have. We each have our own loads, some of us more than others. Plus, I have too much work to do at all times to worry about what my co-workers are doing at their desks."</p>
	Disagreement - <i>No need to compare/do not care</i>	<p>"I don’t compare myself to others. I know many people that complain that they do more work than me, but they don’t know what I do because I don’t broadcast it like others do. I get my work done, and I don’t worry about what others think or do."</p> <p>"I don't compare my workload with my coworkers. My workload is my workload, and their workload is theirs. It feels childish to compare them. The tasks that are given to you are your tasks and the tasks that are given to them are theirs. None of your business, unless it's a collaboration."</p>

Table 4 (cont'd)

Dimension	Theme	Sample Quotes
Stress-Related Impression Management	Agreement - Purposefully compete	<p>"I am a very competitive person and I want to make sure that other people know how hard I am working because it makes me look a lot better in the workplace and it makes other people look up to me and aspire to be just like me, like I have a reputation at work for being a really hard worker and that makes me feel really good about myself."</p> <p>"Sometimes I am worried that people don't realize how much work I have to do because I'm not always on the phone or going places. It can seem as though I'm not busy when I really am. Therefore, I try to make it know what I am working on so that people know that I am quite busy."</p> <p>"I have one co-worker in particular who I feel like I am always competing with. I don't like when it seems like she's doing more or is being more productive and successful than I am."</p>
	Agreement – <i>Unintentional or only in response to others</i>	<p>"I like to feel important, but I try not to brag, but I'm guilty sometimes"</p> <p>"Sometimes, I feel it is necessary to one up people who talk about their work schedule. Most of the time I won't be the one to initiate and talk about my workload but sometimes it is necessary."</p>
	Somewhat – <i>Only when instrumental</i>	<p>"I'm not a competitive person; I do not feel the need to be more busy than coworkers and make this apparent to them. The only time I'm willing to detail how busy I am is if I'm interacting with someone in a higher position because I know it could affect my evaluation and how quickly I move up the corporate ladder."</p> <p>"While I don't care about what my coworkers are doing, it's sometimes necessary to bring up how much I'm doing so that they don't tell our supervisor that I'm not contributing. Because they will."</p>
	Disagreement	<p>"I'm not competitive nor do I want to compete with others in my current workplace. If someone wanted to know how much workload I had I would tell them but probably wouldn't go around broadcasting it."</p> <p>"I don't feel the need to publicly call attention to my level of work. Nor do I think that comparing workloads with others is a good use of my time."</p>

Table 5

Correlations between stress-badge subscales and individual differences in Study 1.

	Stress as Achievement	Relaxation Remorse	Stress- Related Social Comparison	Stress-Related Impression Management
Gender	.01	.08	.06	.04
Age	-.07	-.06	-.16*	-.10
Ethnicity	.00	.06	.01	-.03
Education	-.10	-.10	-.04	-.03
Hours worked per week	.07	.18**	.04	.07
Core Self Evaluations	.14*	-.19**	-.20**	-.19**
PS -Networking Ability	.35**	.03	.15*	.19**
PS -Apparent Sincerity	.08	-.12	-.04	-.16*
PS -Social Astuteness	.23**	-.05	.07	-.02
PS -Interpersonal Influence	.12	-.16*	-.03	-.09
Extraversion	.15*	-.11	-.02	.12
Agreeableness	.00	-.11	-.09	-.15*
Neuroticism	-.05	.20**	.15*	.14*
Openness	.06	-.04	-.01	-.15*
Conscientiousness	.11	.02	-.13*	-.18**

* $p < .05$. ** $p < .01$. *N range = 245-248.*

Table 6
Descriptive Statistics and correlations among factors Study 2.

	<i>M</i>	<i>SD</i>	1	2	3	4
1. Stress as Achievement	4.32	1.34	(.92 / .79)			
2. Relaxation Remorse	4.15	1.73	.38*	(.96 / .89)		
3. Stress-Related Social Comparison	4.06	1.42	.61*	.32*	(.86 / .78)	
4. Stress-Related Impression Management	2.94	1.45	.43*	.32*	.60*	(.92 / .84)

* $p < .01$. $N = 1077$.

Note: Diagonal contains (Cronbach's alpha / Square root of the Average Variance Extracted).

Table 7.

Correlations among internal dimensions of the Stress Badge measure and measures of convergent and discriminant validity.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Stress achievement	4.32	1.34	(.92)											
1. Relaxation Remorse	4.15	1.73	.37*	(.96)										
3. Stress-Related Social Comparison	4.06	1.42	.57*	.30*	(.86)									
4. Work excessively	3.09	0.87	.40*	.76*	.27*	(.83)								
5. Work compulsively	3.33	0.90	.43*	.69*	.29*	.90*	(.77)							
6. Perfectionism	3.62	0.78	.40*	.46*	.25*	.58*	.70*	(.92)						
7. Detachment	3.15	0.94	.27*	-.56*	-.14*	-.62*	-.47*	-.40*	(.84)					
8. Relaxation activities	3.73	0.84	-.16*	-.58*	-.11*	-.58*	-.42*	-.27*	.75*	(.90)				
9. General social comparison	3.32	0.75	.37*	.27*	.58*	.27*	.30*	.35*	-.17*	-.06*	(.89)			
10. Social desirability	19.87	3.44	-.06*	.04	.09*	.07*	-.02	-.09*	-.002	-.07*	.23*	(.81)		
11. Positive affect	3.27	0.87	.26*	.10*	.11*	.25*	.30*	.37*	-.12*	.01	.07*	-.29*	(.92)	
12. Negative affect	1.56	0.74	.09*	.24*	.15*	.19*	.11*	.01	-.12*	-.19*	.19*	.27*	-.12*	(.94)

*p < .05. N = 1077. Note: Stress Badge dimensions are modeled as latent factor while the remaining scales are modeled as composite variables with the error variance fixed to account for unreliability in the items. Cronbach's alpha is displayed in the diagonal.

Table 8
Descriptive Statistics and correlations among Stress Badge subscales at Time 1 and Time 2.

	M	SD	1	2	3	4	5	6	7	8
1. Stress as Achievement (T1)	4.26	1.36	(.93)							
2. Relaxation Remorse (T1)	4.08	1.73	.40*	(0.96)						
3. Stress-Related Social Comparison (T1)	4.01	1.43	.60*	.30*	(.86)					
4. Stress-Related Impression Management (T1)	2.88	1.42	.42*	.32*	.60*	(.92)				
5. Stress as Achievement (T2)	4.25	1.33	.74*	.35*	.50*	.37*	(0.93)			
6. Relaxation Remorse (T2)	3.96	1.66	.31*	.69*	.25*	.24*	.33*	(0.96)		
7. Stress-Related Social Comparison (T2)	3.97	1.48	.46*	.28*	.64*	.46*	.59*	.30*	(.89)	
8. Stress-Related Impression Management (T2)	2.83	1.40	.38*	.23*	.45*	.71*	.45*	.23*	.61*	(.91)

*p< .05. N = 752. Cronbach's alpha is displayed on the diagonal.

Table 9

Incremental effects of the Stress Badge in relation to measures of convergent validity predicting performance, health, and wellbeing.

	Performance		Depression		Anxiety		WFC		Work RQ	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Stress Badge (only)	.12*	.03	.09*	.04	.10*	.03	.16*	.07	.19*	.07
<i>Model 1.</i>										
Stress Badge	-.36*	.15	.26	.15	.33*	.15	.22	.23	-.28	.23
Work Excessively	.18	.14	.32*	.15	.20	.14	1.12*	.26	-.26	.24
Work Compulsively	.33*	.11	-.38*	.13	-.32	.11	-.96*	.23	.53*	.21
<i>R</i> ²		.20		.18		.21		.41		.06
ΔR^2		.09*		.02*		.04*		.00		.01*
<i>Model 2.</i>										
Stress Badge	-.02	.04	.20*	.06	.21*	.05	.36*	.10	.08	.09
Perfectionism	.20*	.04	-.07	.05	-.08	.04	-.14	.08	.06	.08
<i>R</i> ²		.13		.06		.09		.09		.02
ΔR^2		.02*		.05*		.08*		.08*		.00
<i>Model 3.</i>										
Stress Badge	.08	.04	.17*	.05	.19*	.04	.32*	.08	-.03	.08
Psychological Detachment	-.10*	.04	.32*	.08	.10*	.05	.03	.09	.22*	.09
Relaxation Activities	.37*	.10	-.24*	.06	-.18*	.05	-.16	.09	.37*	.10
<i>R</i> ²		.05		.15		.18		.16		.05
ΔR^2		.01*		.04*		.06*		.06*		.00
<i>Model 4.</i>										
Stress Badge	.12*	.05	.03	.06	.03	.05	.05	.09	.08	.10
General Social Comparison	-.05	.04	.10*	.05	.13*	.04	.18*	.09	.11	.08
<i>R</i> ²		.04		.04		.06		.05		.03
ΔR^2		.04*		.01*		.00		.00		.01*

* $p < .05$. $N = 752$. Notes. WFC = work-family conflict. RQ = Relationship Quality. ΔR^2 represents the change in R^2 from a model only including the convergent validity measure to a model with both the convergent validity measure and the Stress Badge measure. Model 1 Fit: SB $\chi^2(1387) = 2350.23$, $p < .001$, CFI = .93, SRMR = .07, RMSEA = .04, 90% CI (.035, .040). Model 2 Fit: SB $\chi^2(1341) = 2275.05$, $p < .001$, CFI = .92, SRMR = .07, RMSEA = .04, 90% CI (.035, .040). Model 3 Fit: SB $\chi^2(1724) = 2719.75$, $p < .001$, CFI = .94, SRMR = .07, RMSEA = .03, 90% CI (.032, .036). Model 4 Fit: SB $\chi^2(1341) = 2251.72$, $p < .001$, CFI = .93, SRMR = .07, RMSEA = .04, 90% CI (.034, .040).

Table 10.

Estimates of Indirect effects of the Stress Badge on outcomes through recovery experiences and perceived stress.

Outcome	Indirect Effect through Recovery				Indirect Effect through Stress			
	a*b	SE of a*b	z-value	sig.	a*b	SE of a*b	z-value	sig.
Performance	.05	.02	2.26	< .05	-.06	.01	-4.19	< .05
Anxiety	.04	.01	2.58	< .05	.18	.03	7.22	< .05
Depression	.17	.02	7.12	< .05	.20	.03	6.93	< .05
Physical Health Symptoms	-.37	.11	-3.36	< .05	-.61	.10	-6.13	< .05
Work-Family conflict	.08	.03	2.50	< .05	.23	.03	6.72	< .05
Spouse Relationship Quality	-.05	.04	-1.15	NS	-.15	.03	-5.26	< .05
Work Relationship Quality	.00	.04	0.03	NS	-.15	.03	-4.94	< .05

Note. Z-value greater than 1.96 indicates a significant indirect effect. The indirect relationship on performance through recovery was inconsistent mediation, as the relationship was not significant in the model only considering recovery experiences.

FIGURES

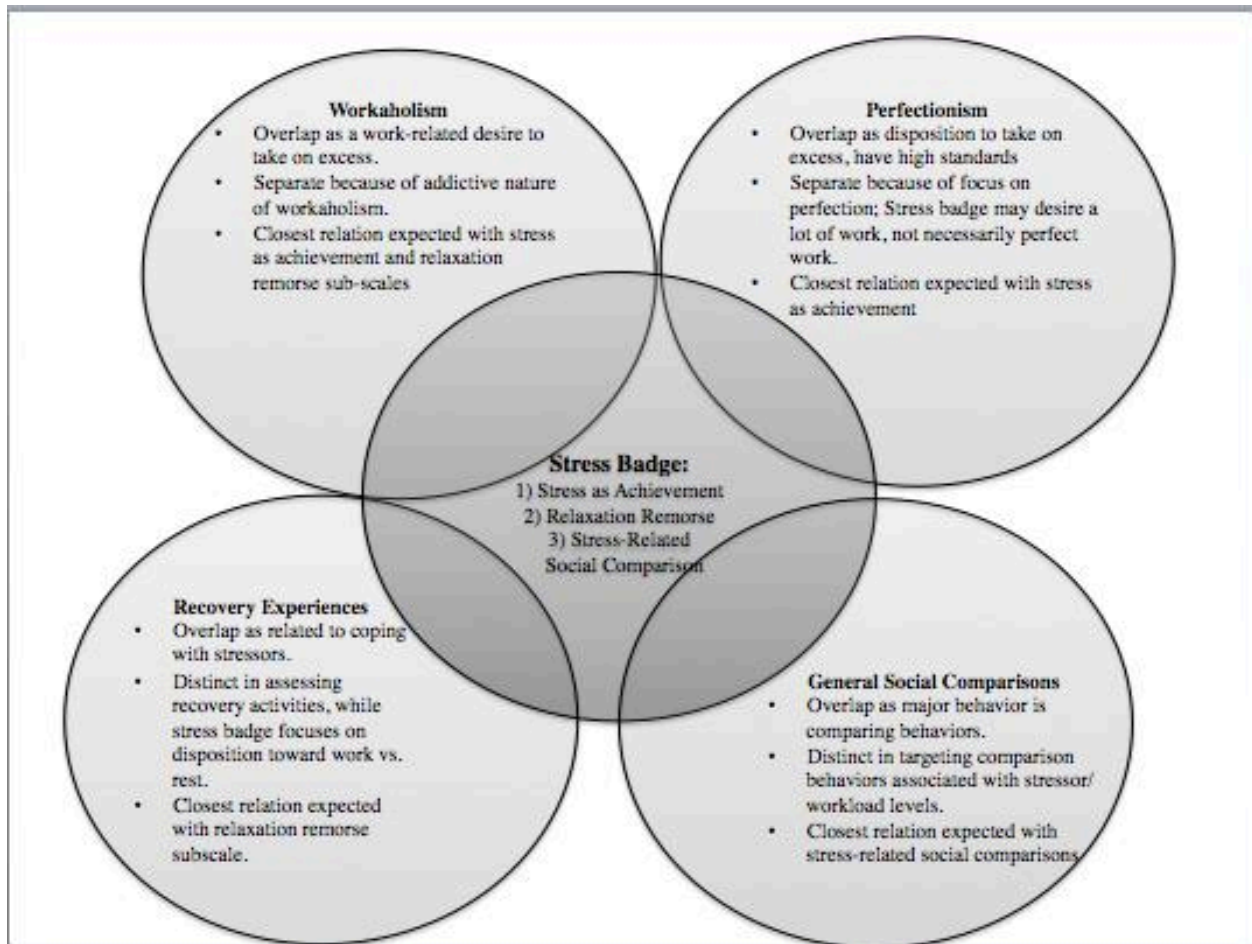


Figure 1. A summary of the conceptual similarities and differences between the Stress Badge construct and existing constructs.

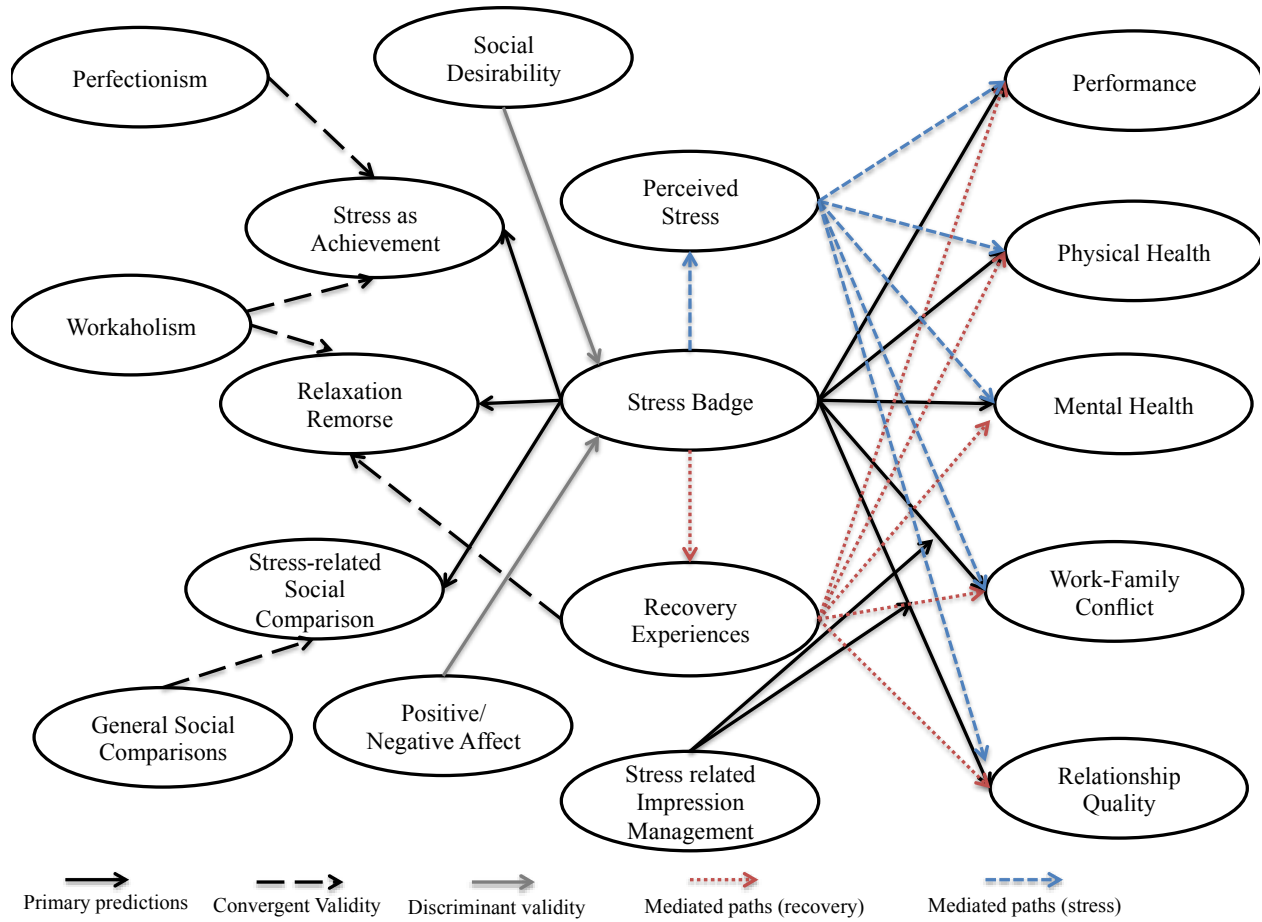


Figure 2. Nomological net of expected relationships between sub-dimensions, measure of convergent validity, discriminant validity, and predictive validity with relevant outcomes. Note discriminant validity relationships were examined at the level of the Stress Badge sub-scales, but are simplified in the figure to relate to the overall Stress Badge construct.

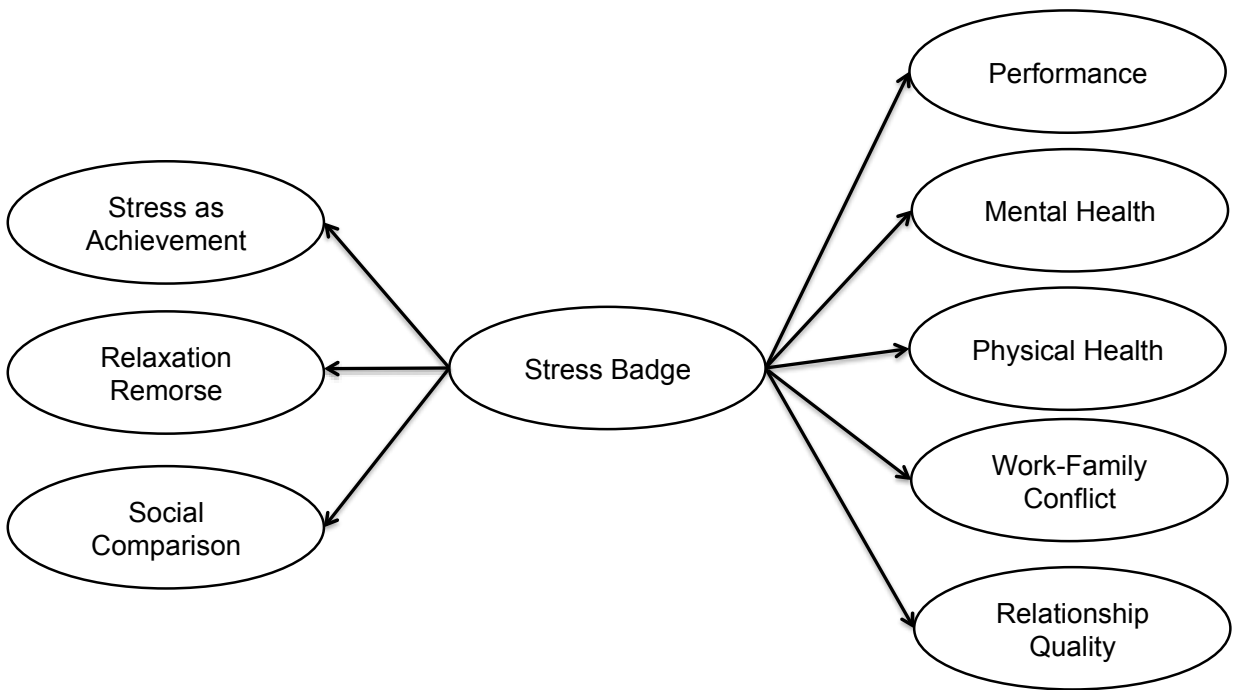


Figure 3. Conceptual total effects model, including the second order construct.

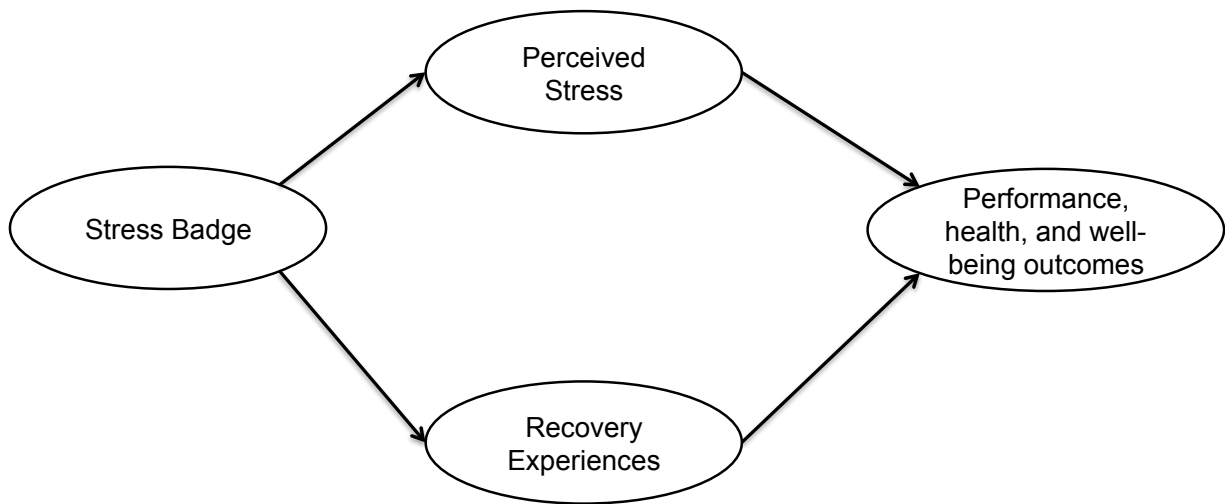


Figure 4. Simplified proposed mediation model.

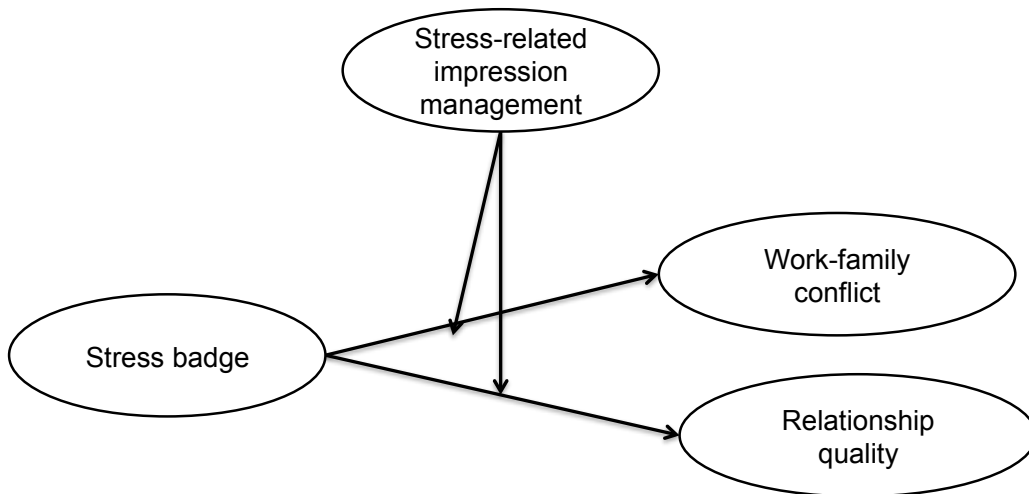


Figure 5. Simplified proposed moderation model.

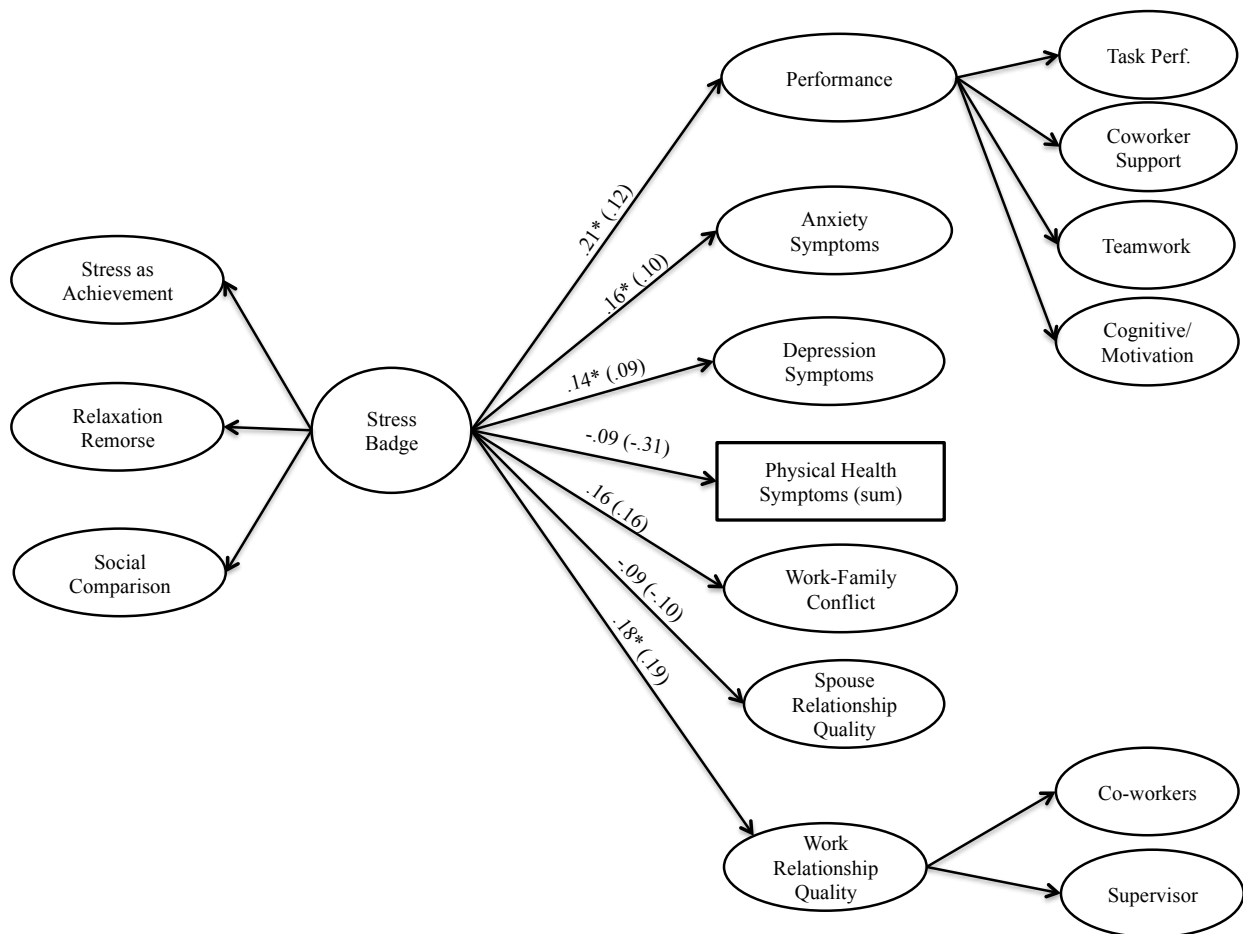


Figure 6. Structural Equation Model of the total effects between the Stress Badge and outcomes. Notes: The figure includes the standardized regression coefficient with the unstandardized coefficient in parentheses. * $p < .05$.

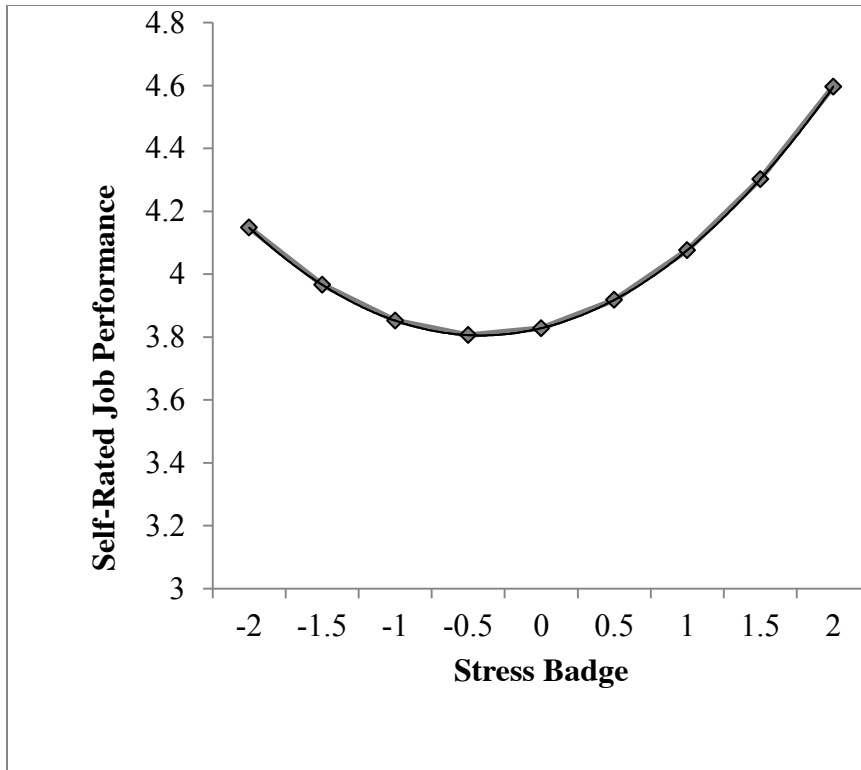


Figure 7. Non-linear relationship between the Stress Badge and self-rated job performance. The Stress Badge was mean-centered; zero represents the mean score, with the full scale indexing +/- 2 standard deviations from the mean.

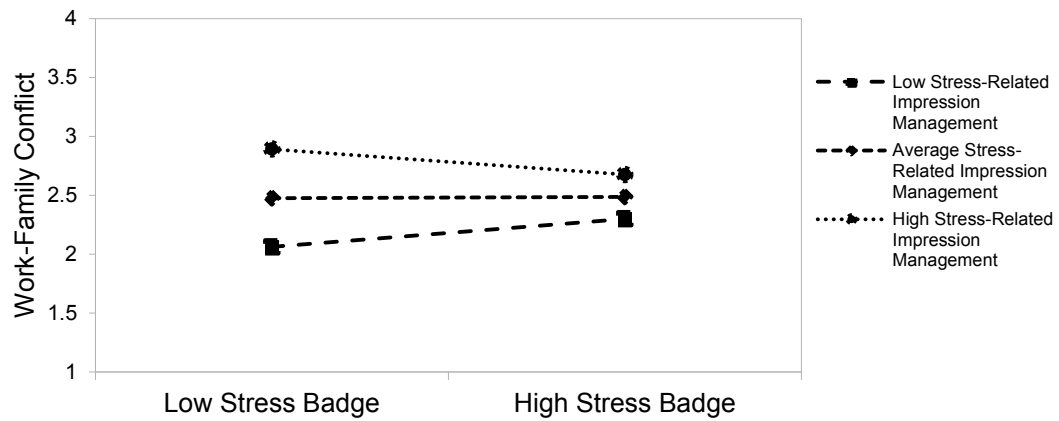


Figure 8. Interaction between the Stress Badge and Stress-Related Impression Management predicting work-family conflict.

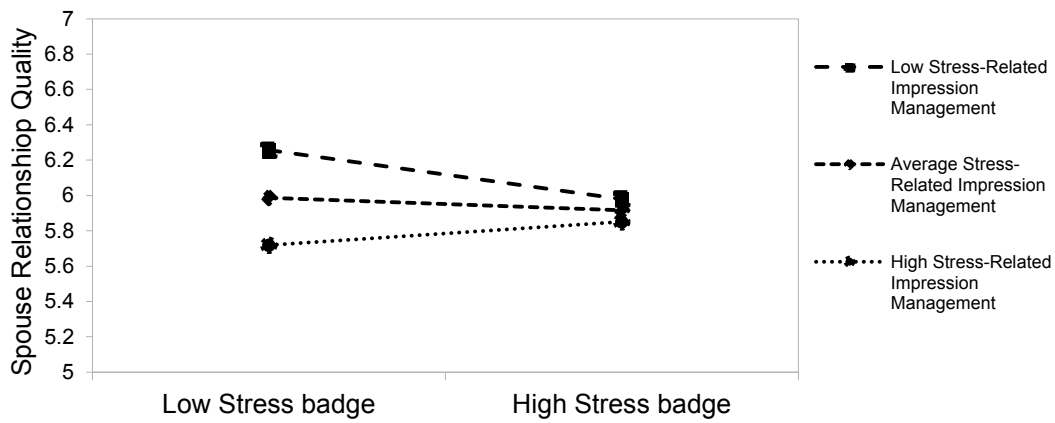


Figure 9. Interaction between the Stress Badge and Stress-Related Impression Management predicting spouse relationship quality.

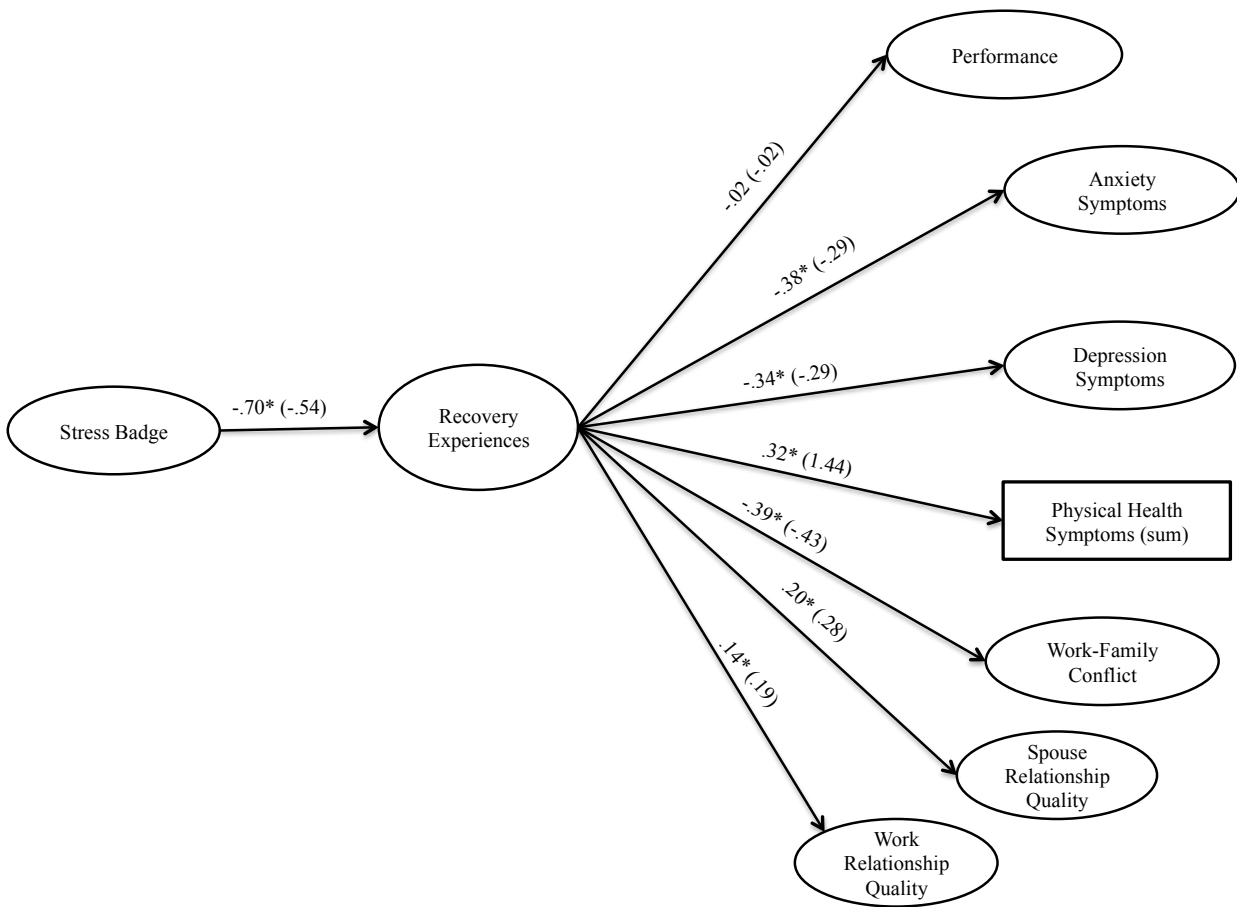


Figure 10. Mediated relationship of the Stress Badge to outcome measures through recovery experiences. Note: The figure includes the standardized regression coefficient with the unstandardized coefficient in parentheses. * $p < .05$.

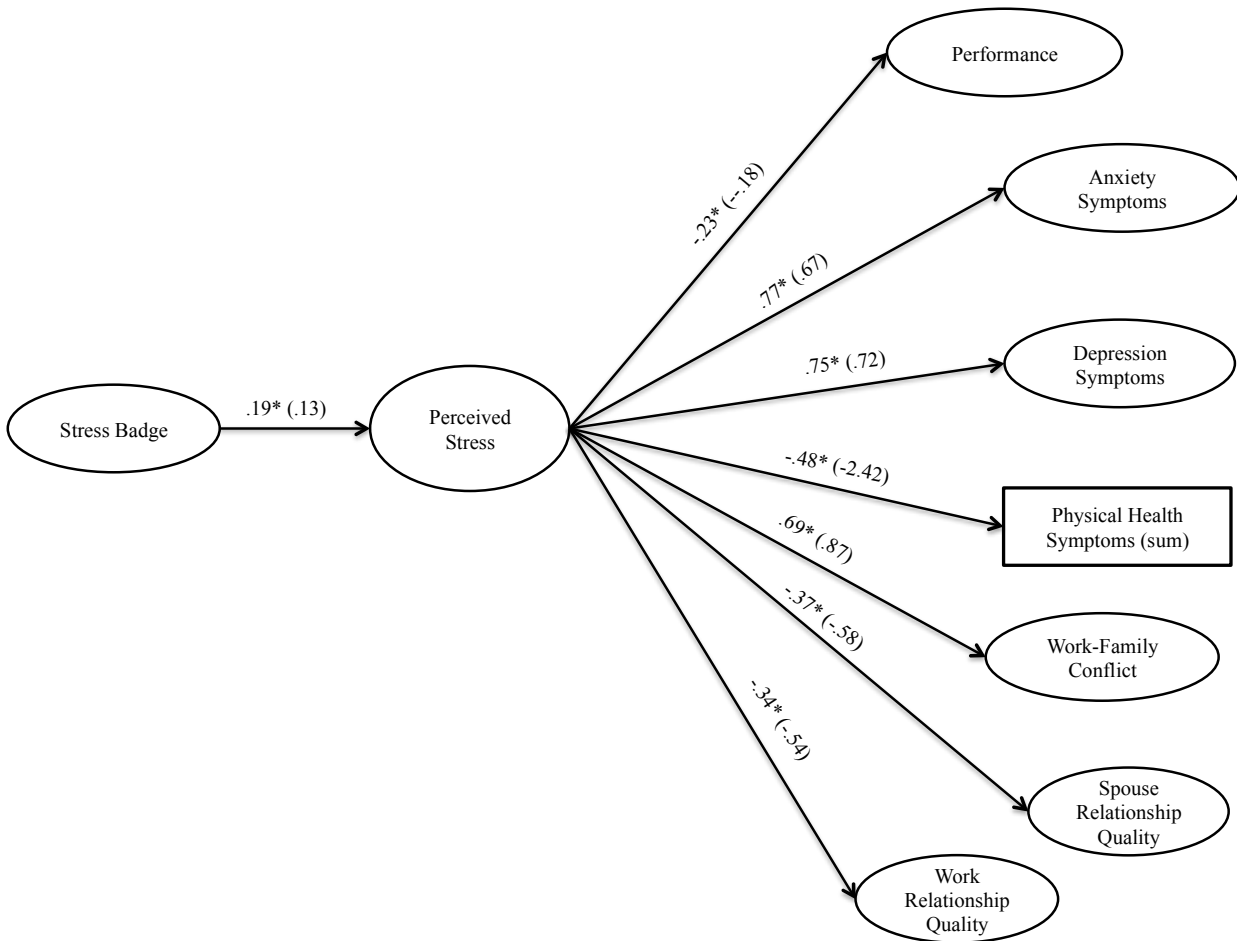


Figure 11. Mediated relationship of the Stress Badge to outcome measures through perceived stress. Note. The figure includes the standardized regression coefficient with the unstandardized coefficient in parentheses. * $p < .05$.

APPENDICES

APPENDIX A
STRESS BADGE MEASURE

Stress as Achievement

1. Stress is an important component to achieving work goals.
2. Stress is a necessary part of working hard.
3. Other people will think I'm successful if I talk about how stressed I am.
4. Talking about stress makes it apparent that I'm working hard.
5. I admire people who work under highly stressful conditions.
6. I tend to think people who have a high amount of stress are impressive.
7. I assume that individuals with high amounts of stress must be important.

Items removed from Study 2, following Study 1 results

People who are high achievers frequently encounter high amounts of stress.

Part of being a successful person is accomplishing tasks under high amounts of stress.

It is difficult for people to achieve great things without experiencing stress.

Relaxation Remorse

1. Relaxing makes me feel guilty because there is always something else I should be doing.
2. Relaxing often makes me feel bad because I feel I am wasting time when I should be doing something productive.
3. When I try to relax, I feel like I should be doing work instead.
4. Relaxing is difficult for me because there are always more important things I need to do.
5. Relaxing when I have other things to do makes me feel guilty.
6. When I try to relax, I typically feel remorse about not working. **

**Item unintentionally left out of Study 1, but retained in study 2.

Stress-Related Social Comparison

1. I look to my co-workers to determine if I'm under enough stress.
2. I pay close attention to how stressed I am, compared to those around me.
3. If I want to know if I'm under enough stress, I look to those around me.

Items removed from Study 2, following Study 1 results and Study 2 Time 1.

When my co-workers tell me how stressed they are, it often makes me feel like I am not doing enough.

When my co-workers tell me how stressed they are, it often makes me feel like my work ethic is inadequate.

I often get bothered when friends with easier jobs think they have more to do than me.

I feel accomplished when I compare myself to those who do not experience a lot of stress.

Stress-Related Impression Management

1. I list off all my tasks to my coworkers so they know I'm more stressed than them.
2. I give people a rundown of my busy schedule so they know I am more stressed than them.
3. I incorporate how stressed I am into conversations with my co-workers so they know I more stressed.
4. I publicly compete with my co-workers about the amount of stress I am under (e.g., by saying I have more work than them).
5. When my co-workers tell me about their stress I feel competitive because I need to make sure they're aware I have just as much stress.

Items removed from Study 2, following Study 1 results and Study 2 Time 1.

I sometimes exaggerate how stressed I am to my co-workers.

When co-workers tell me how stressed they are, I let them know I am just as stressed as they are.

APPENDIX B

PERSONALTY CORRELATES

Political Skill Inventory

1. I spend a lot of time and effort at work networking with others.
2. At work, I know a lot of important people and am well connected.
3. I am good at using my connections and networks to make things happen at work.
4. I have developed a large network of colleagues and associates at work whom I can call on for support when I really need to get things done.
5. I spend a lot of time at work developing connections with others.
6. I am good at building relationships with influential people at work.
7. It is important that people believe I am sincere in what I say and do.
8. When communicating with others, I try to be genuine in what I say and do.
9. I try to show a genuine interest in other people.
10. I always seem to instinctively know the right thing to say or do to influence others.
11. I have good intuition or savvy about how to present myself to others.
12. I am particularly good at sensing the motivations and hidden agendas of others.
13. I pay close attention to people's facial expressions.
14. I understand people very well.
15. It is easy for me to develop good rapport with most people.
16. I am able to make most people feel comfortable and at ease around me.
17. I am able to communicate easily and effectively with others.
18. I am good at getting people to like me.

Core-Self Evaluations

1. I am confident I get the success I deserve in life.
2. Sometimes I feel depressed.
3. When I try, I generally succeed.
4. Sometimes when I fail I feel worthless.
5. I complete tasks successfully.
6. Sometimes, I do not feel in control of my work.
7. Overall, I am satisfied with my life.
8. I am filled with doubts about my competence.
9. I determine what will happen in my life.
10. I do not feel in control of my success in my career.
11. I am capable of coping with most of my problems.
12. There are times when things look pretty bleak and hopeless to me.

Big Five Personality (BFI-10)

I see myself as someone who:

1. ...is reserved
2. ...is generally trusting
3. ...tends to be lazy
4. ...is relaxed, handles stress well
5. ...has few artistic interests
6. ...is outgoing, sociable
7. ...tends to find fault with others
8. ...does a thorough job
9. ...gets nervous easily
10. ...has an active imagination

APPENDIX C

CONVERGENT VALIDITY MEASURES AND MEDIATORS

Workaholism

Instructions: Please indicate the extent to which you exhibit the following behaviors or characteristics using the scale provided.

1	2	3	4	5
Almost never	Occasionally	Sometimes	Often	Almost Always

1. I seem to be in a hurry and racing against the clock.
2. I find myself continuing to work after my coworkers have called it quits.
3. I stay busy and keep many irons in the fire.
4. I spend more time working than on socializing with friends, on hobbies, or on leisure activities.
5. I find myself doing two or three things at one time, such as eating lunch and writing a memo while talking on the telephone.
6. It's important to me to work hard even when I don't enjoy what I'm doing.
7. I feel that there's something inside me that drives me to work hard.
8. I feel obliged to work hard, even when it's not enjoyable.
9. I feel guilty when I take time off work
10. It is hard for me to relax when I'm not working.

Self-oriented perfectionism

Instructions: Please rate the extent to which you agree with the following items using the scale provided.

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

1. When I am working on something, I cannot relax until it is perfect
2. One of my goals is to be perfect in everything I do
3. I never aim for perfection on my work
4. I seldom feel the need to be perfect
5. I strive to be as perfect as I can be
6. It is very important that I am perfect in everything I attempt
7. I strive to be the best at everything I do
8. I demand nothing less than perfection of myself
9. It makes me uneasy to see an error in my work
10. I am perfectionistic in setting my goals
11. I must work to my full potential at all times
12. I do not have to be the best at whatever I am doing
13. I do not have very high goals for myself
14. I set very high standards for myself
15. I must always be successful at school or work

Recovery Experiences (Psychological detachment and relaxation)

Instructions: Please rate the extent to which you agree with the following items using the scale provided.

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

1. I forget about work.
2. I don't think about work at all.
3. I distance myself from work.
4. I get a break from the demands of work.
5. I kick back and relax.
6. I do relaxing things.
7. I take time for leisure.
8. I learn new things.

Social comparison

Instructions: Please rate the extent to which you agree with the following items using the scale provided.

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

1. I often compare myself with others with respect to what I have accomplished in life.
2. If I want to learn more about something I try to find out what others think about it.
3. I always pay a lot of attention to how I do things compared with how others do things.
4. I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing.
5. I always like to know what others in a similar situation would do.
6. I am not the type of person who compares often with others.
7. If I want to find out how well I've done something, I compare what I have done with how others have done.
8. I often try to find out what others think who face similar problems as I face.
9. I often like to talk with others about mutual opinions and experiences.
10. I never consider my situation in life relative to that of other people.
11. I often compare how I am doing socially (e.g. , social skills, popularity) with other people.

Perceived Stress Scale

Instructions: The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate. For each question, choose from the following alternatives:

0	1	2	3	4
Never	Almost never	Sometimes	Fairly Often	Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and "stressed"?
4. In the last month, how often have you dealt successfully with irritating life hassles? (R)
5. In the last month, how often have you felt that you were effectively coping with important changes were occurring in your life? (R)
6. In the last month, how often have you felt confident about your ability to handle your personal problems? (R)
7. In the last month, how often have you felt that things were going your way?
8. In the last month, how often have you found that you could not cope with all the things that you had to do?
9. In the last month, how often have you been able to control irritations in your life? (R)
10. In the last month, how often have you felt that you were on top of things? (R)
11. In the last month, how often have you been angered because of things that happened that were outside of your control?
12. In the last month, how often have you found yourself thinking about things that you have to accomplish?
13. In the last month, how often have you been able to control the way you spend your time? (R)
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

APPENDIX D

DISCRIMINANT VALIDITY MEASURES

Social Desirability

Instructions: Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you.

True False

1. It is sometimes hard for me to on with my work if I am not encouraged.
2. I sometimes feel resentful when I do not get my way.
3. On a few occasions, I have given up on doing something because I thought too little of my ability.
4. There have been times when I felt like rebelling against people in authority even though I knew they were right.
5. No matter who I am talking to, I am always a good listener.
6. There have been occasions when I took advantage of someone.
7. I am always willing to admit when I make a mistake.
8. I sometimes try to get even, rather than forgive and forget.
9. I am always courteous, even to people who are disagreeable.
10. I have never been irked when people expressed ideas very different from my own.
11. There have been times when I was quite jealous of the good fortune of others.
12. I am sometimes irritated by people who ask favors of me.
13. I have never deliberately said something that hurt someone's feelings.

Positive and Negative Affect

Instructions: In general, rate the extent to which you feel the following states, using the scale provided.

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Very Much

- | | |
|-----------------|----------------|
| 1. Enthusiastic | 11. Scared |
| 2. Interested | 12. Afraid |
| 3. Determined | 13. Upset |
| 4. Excited | 14. Distressed |
| 5. Inspired | 15. Jittery |
| 6. Alert | 16. Nervous |
| 7. Active | 17. Ashamed |
| 8. Strong | 18. Guilty |
| 9. Proud | 19. Irritable |
| 10. Attentive | 20. Hostile |

APPENDIX E

PREDICTIVE VALIDITY MEASURES

Job Performance

Instructions (self-rated): Note that these ratings are being collected for research purposes only. They will not be a part of your record. Please consider your personal performance. Then, using the scale provided, indicate how well you feel your performance is relative to your coworkers in the department.

1	2	3	4	5
Worse than most	Worse than average	Average	Better than average	Better than Most

1. Adequately completes assigned duties.
2. Performs tasks that are expected of me.
3. Meets formal performance requirements of the job.
4. Attends to aspects of the job I am obligated to perform.
5. Helps smooth out relationships with other employees.
6. Tries to help and support coworkers.
7. Avoids becoming angry or hostile with coworkers or supervisors.
8. Offers suggestions to improve the department.
9. Helps other employees who have heavy workloads.
10. Communicates with coworkers regarding work tasks.
11. Communicates any problems to the appropriate individual.
12. Helps new employees get oriented with the department.
13. Handles important details with sustained and focused attention.
14. Works with determination despite obstacles, setbacks, or frustrations.
15. Remains calm, self-assured, and organized when reacting to difficult situations.
16. Maintains concentration when working long hours.
17. OVERALL PERFORMANCE.

Depression

Instructions: Over the last 2 weeks, rate how often have you been bothered by any of the following symptoms using the provided scale.

0	1	2	3
Not at all	Several days	More than half the days	Nearly every day

1. Little interest or pleasure doing things.
2. Feeling down, depressed, or hopeless.
3. Trouble falling or staying asleep, or sleeping too much.
4. Feeling tired or having little energy.
5. Poor appetite or overeating.

6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down.
7. Trouble concentrating on things, such as reading the newspaper or watching television.
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around more than usual.
9. Thoughts that you would be better off dead or of hurting yourself in some way.

Anxiety

Instructions: Please rate the extent to which you generally feel the following emotions or feelings using the provided scale.

1	2	3	4	5
Almost never	Occasionally	Sometimes	Often	Almost Always

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Calm 2. Secure 3. Tense 4. Regretful 5. At ease 6. Upset 7. Misfortunes 8. Rested 9. Anxious 10. Comfortable | <ol style="list-style-type: none"> 11. Self-confident 12. Nervous 13. Jittery 14. High-strung 15. Relaxed 16. Content 17. Worried 18. Over-excited 19. Joyful 20. Pleasant |
|--|--|

Physical Symptoms

Instructions: A list of physical health symptoms is provided below. Please indicate if you have experienced the symptom within the past six weeks and whether or not they saw a doctor for the symptom.

Symptom: Yes or no

Doctor: Yes or no

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. An upset stomach or nausea 2. A backache 3. Trouble sleeping 4. A skin rash 5. Shortness of breath 6. Chest pain 7. Headache 8. Fever 9. Acid indigestion or heartburn | <ol style="list-style-type: none"> 10. Eye strain 11. Diarrhea 12. Stomach cramps (Not menstrual) 13. Constipation 14. Heart pounding when not exercising 15. An infection 16. Loss of appetite 17. Dizziness 18. Tiredness or fatigue |
|---|---|

Work-Family Conflict

Instructions: Please rate the extent to which you agree with the following items using the provided scale.

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

1. I have to miss activities due to the amount of time I must spend on work responsibilities.
2. I am often so emotionally drained when I get home from work that it prevents me from contributing to my family.
3. The behaviors I perform that make me effective at work do not help me to be a better parent and spouse.

Relationship Quality

Instructions: The following items concern your relationships with several important others: your spouse (if applicable), your co-workers, and your supervisors. Rate how you generally feel about these individuals or groups of individuals using the provided scale.

1	2	3	4	5	6	7
Not at all	A little	Slightly	Neutral	Moderately	Very Much	Extremely

1. In general, how close do you feel to your spouse?
2. In general, how much do you like your spouse?
3. In general, how much do you trust your spouse?
4. In general, how close do you feel to your co-workers?
5. In general, how much do you like your co-workers?
6. In general, how much do you trust your co-workers?
7. In general, how close do you feel to your supervisor?
8. In general, how much do you like your supervisor?
9. In general, how much do you trust your supervisor?