

THESIS

DISPOSITIONAL AND CONTEXTUAL RESOURCES

AS PREDICTORS OF NEED FOR RECOVERY

Submitted by

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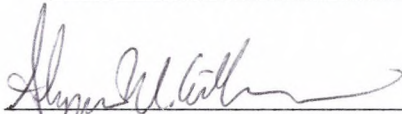
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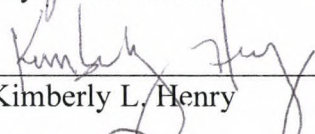
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WE HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER OUR SUPERVISION BY PAIGE GARDNER ENTITLED DISPOSITIONAL AND CONTEXTUAL RESOURCES AS PREDICTORS OF NEED FOR RECOVERY BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE.

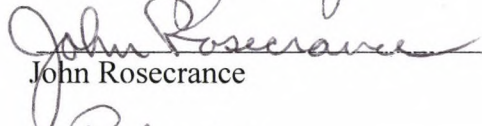
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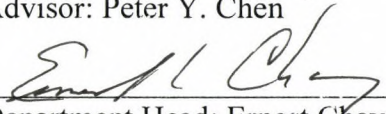
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ABSTRACT OF THESIS
DISPOSITIONAL AND CONTEXTUAL RESOURCES
AS PREDICTORS OF NEED FOR RECOVERY

The current study considered how dispositional and contextual resources relate to need for recovery across time. This study extends the need for recovery literature by integrating need for recovery, the concept of resources from Hobfoll's Conservation of Resources theory, and models of personality and social support in the stress process. It was hypothesized that dispositional resources (conscientiousness, emotional stability, optimism, and self-esteem) as well as contextual resources (positive social support) would predict need for recovery at Time 1 and Time 2. These hypotheses were partially supported. Dispositional and contextual resources were negatively related to need for recovery at Time 1 but did not predict need for recovery at Time 2 while controlling for need for recovery at Time 1. These results suggest limited roles played by dispositional and contextual resources, at least for the variables studied in the present study, in reducing need for recovery. Implications and opportunities for future research are discussed.

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CHAPTER 1

INTRODUCTION

The negative effects of job stress on physical and mental health are widely recognized (National Institute for Occupational Safety and Health [NIOSH], 1999). Job stressors have been linked to physical health problems such as cardiovascular disease, musculoskeletal disorders, and poor immune functioning, as well as psychological health problems such as depression and burnout. While brief periods of exposure to minor or even moderate stressors may not be particularly harmful, substantial damage can be done to the body's systems when this exposure continues over time (NIOSH, 1999). These findings have made early identification of stress-related health issues a useful pursuit.

Need for recovery, a state of cognitive, emotional, or energy-related resource drain (Cunningham, 2008), has been identified as playing an important mediating role in the process of job stressors leading to strains (Sluiter, de Croon, Meijman, & Frings-Dresen, 2003; Sluiter, van der Beek, & Frings-Dresen, 1999). Researchers have suggested that monitoring levels of need for recovery may be a useful method of detecting early indications of future stress-related health problems. If high levels of need for recovery are identified, interventions could be put into place before serious health concerns arise (De Croon, Sluiter, & Frings-Dresen, 2006; Jansen, Kant, & Van der Brandt, 2002).

Furthermore, it would be beneficial to identify resources which may lessen workers' cognitive, emotional, or energy-related resource drain. Based on Hobfoll's Conservation of Resources Theory (1989), dispositional and contextual resources would minimize a net loss of the total resources available to an individual. The current study will add to the need for recovery literature by investigating how these dispositional (i.e., conscientiousness, emotional stability, optimism, and self-esteem) and contextual resources (i.e., social support) predict need for recovery across time.

Overview of the Stress Process

Before clarifying the role of need for recovery, the basic stress process is reviewed. The traditional stress model depicts a process of stressors leading to strains. Stressors are external conditions or events that are believed to cause a negative physical, psychological, or behavioral response, which can be referred to as strain (Kahn & Byosiere, 1992). An early organizational stress model, described by French and Kahn (1962), depicted a course of the objective environment leading to the psychological/perceived environment. In turn, the psychological environment leads to behavior that a person engages in so as to adjust to this environment. Each step in the process, according to French and Kahn (1962), may be influenced by a person's values, needs, affective states, and personality. Many stress researchers have been guided by and have built on this model. For example, Lazarus (1987) has emphasized the process of cognitive appraisal of the objective environment, while Beehr and Newman (1978) added a facet of time to understand the job stress process, and Karasek (1979) focused on how job control may attenuate the negative effects of job demands. While different researchers may highlight different components of the stress process, this general model

of stressors leading to strains has served as the foundation for much of the occupational stress research. An understanding of the stress process is necessary for knowing how to intervene.

Differing opinions exist on how stress interventions should be conducted. In addition to being a topic of much scientific debate, determining the ideal point for stress intervention is an important practical concern. One possibility for intervention is eliminating the stressor. Frese and Zapf (1999) stated that the primary concern of organizational stress researchers should be identifying objective stressors in the environment for the purpose of removing them. Others have suggested that focusing on objective stressors is limiting, because it ignores the complex individual differences in cognitions, emotions, and behaviors which are key components of the stress appraisal process (Perrewe & Zellars, 1999).

In the case of common job stressors, elimination of the stressor is not always a viable solution. For example, it is difficult to imagine how a nurse could ever be free from the emotional challenge of providing compassionate care day after day for those who are seriously ill or injured. While it is advisable to reduce major job stressors, it may be unrealistic to eliminate all stressors from a person's job. Furthermore, interventions that wait until health problems are present, and which rely on rehabilitation and treatment, do not seem wise if early interventions can be implemented. An additional option for stress intervention is to identify an early indicator of strain or a warning sign which occurs prior to strain and to intervene before serious health problems arise. Specifically, by considering this early warning sign, we would be able to anticipate if and when more serious problems are developing and address these problems before someone

experiences adverse health consequences. The current study will focus on a potential warning sign, need for recovery, which is a state of cognitive, emotional, or energy-related resource drain and an important mediator of the stressor-strain relationship.

The Role of Need for Recovery in the Stress Process

Based on the logic of traditional stress models which expect stressors to lead to short-term reactions and long-term strains (French & Kahn, 1962), environmental stressors such as job demands and workload would be expected to have positive associations with need for recovery. Confirming this expectation, stressors such as higher job demands and lower job control (de Croon, Sluiter, & Frings-Dresen, 2003) as well as working a greater number of hours per day and per week have demonstrated positive relationships with need for recovery (Jansen, Kant, van Amelsvoort, Nijhuis, & van den Brandt, 2003). Again, based on the logic of stress models (French & Kahn, 1962), need for recovery is expected to be positively associated with greater strains, and in fact, need for recovery has shown positive relationships with psychosomatic complaints, sleep problems, and emotional exhaustion (Sluiter, van der Beek, & Frings-Dresen, 1999) and was identified as a risk factor for cardiovascular disease (Kivimaki, Leino-Arjas, Kaila-Kangas, Luukkonen, Vahtera, Elovainio et al., 2006). Furthermore, need for recovery has demonstrated a positive association with employee turnover (de Croon, Sluiter, Blonk, Broerson, & Frings-Dresen, 2004), conflict between home and work-life (Demerouti, Taris, & Bakker, 2007), as well as a variety of self-defeating behaviors and cognitions indicative of an inability to manage one's work (Cunningham, 2007).

Empirical evidence has also supported the role of need for recovery as a mediating variable in the relationship between job stressors and strains such as physical

and mental health problems (Sluiter, de Croon, Meijman, & Frings-Dresen, 2003; Sluiter, van der Beek, & Frings-Dresen, 1999). Sluiter et al. (2003) found that need for recovery mediated the relationship between work demands and future health problems such as prolonged fatigue, poor sleep quality, psychosomatic complaints, and emotional exhaustion as well as sickness absence from work. Considering the mediating role of need for recovery, Jansen, Kant, and van den Brant (2002) discussed need for recovery as the earliest stage in the development of prolonged fatigue or other health-related problems.

In addition to Jansen et al.'s (2002) explanation about the role of need for recovery, a variety of conceptualizations have been found in the literature. Need for recovery has at times been discussed as if synonymous with fatigue (de Croon, Sluiter, Blonk, Broerson, & Frings-Dresen, 2004; Sluiter, de Croon, Meijman, & Frings-Dresen, 2003). It has also been defined as a desire to be temporarily relieved from work demands (Sonnentag & Zijlstra, 2006), a need to recuperate from work-induced fatigue experienced after a day of work (Jansen, Kant, van Amelsvoort, Nijhuis, & van den Brandt, 2003) or as short-term fatigue (van Amelsvoort, Kant, Bultmann, & Swaen, 2003). Underlying each of these various conceptualizations is a recognition that need for recovery is an early stage of the long-term strain process and, thus, occurs prior to chronic fatigue, health problems, or other strains (Jansen, et al., 2002; Sluiter et al., 2003). In fact, Jansen et al. (2002) demonstrated through factor analysis that need for recovery, fatigue, and psychological distress were distinguishable constructs. While the literature has sometimes made a conceptual comparison between need for recovery and

fatigue, there is evidence that need for recovery occurs prior to strains and is a distinct construct from strains.

Cunningham (2008) defined need for recovery as a pre-strain state of cognitive, emotional, or energy-related resource depletion and described how, each day, individuals use a variety of resources in order to meet work demands. The need for recovery construct captures this state of resource depletion that may result from engaging in various work activities. When an individual reaches this state, he or she may take a break from work to engage other activities, recover from cognitive, emotional, or energy-related resource drain, and return to work after the drained resources are replenished (Cunningham, 2007). The emphasis on need for recovery as a state of resource drain is informed by a theoretical framework of the stress process known as Conservation of Resources.

Conservation of Resources and the Recovery Process

Conservation of Resources (COR) is a comprehensive stress theory developed by Hobfoll. According to COR theory (Hobfoll, 1989), an individual experiences strain as a reaction to the environment when there is a net loss of resources, a threat of a net loss of resources, or a lack of resource gain after an individual has invested resources. There are many different types of resources available to an individual. Hobfoll (1989) indicated that resources may be objects (e.g., a home), personal characteristics (e.g., self-esteem), conditions (e.g., marriage or seniority), or energies (e.g., physical, emotional, or cognitive energy; Hobfoll & Shirom, 2001) that are of value to an individual and help the individual to cope with a stressor. When faced with a stressor, individuals will attempt to minimize a net loss of resources. When not immediately faced with a stressor, individuals

will attempt to rebuild resources or gain additional resources in order to offset potential loss in the future (Hobfoll, 1989). Long-term strains involve the wearing down of physical, emotional, and cognitive energy gradually over time to the point at which these energies cannot be replenished. Hobfoll and Shirom (2001) further suggested that the early stages of strain could be identified by a state of resource depletion, consistent with the definition of the need for recovery construct.

The COR concepts of resource loss and replenishment have been utilized in research on recovery, a process by which individuals return to a state of positive psychological well-being during time away from work after exposure to work-related stressors (Sonnentag & Fritz, 2007). Fritz and Sonnentag (2005) stated that daily job demands require that an individual utilize his or her resources in order to meet these demands. However, during time away from work (i.e., evenings, weekends, vacation) when employees are free from their daily job demands, they may be able to recover or return to a state of well-being. This line of research is often concerned with identifying activities or experiences during time away from work that are either positive or negatively associated with well-being upon returning to work, thus identifying experiences which either facilitate or inhibit the recovery process (e.g., Fritz & Sonnentag, 2005; Rook & Zijlstra, 2006).

Based on COR theory, it is believed that certain experiences while away from work enhance well-being because they facilitate regaining or rebuilding of cognitive, emotional, or energy resources (Fritz & Sonnentag, 2005). Positive work reflection, social activity (Fritz & Sonnentag, 2007), and physical activities (Rook & Zijlstra, 2006), are all experiences that are believed to support the recovery process due to their positive

relationship with well-being upon returning to work. Positive work reflection, thinking about one's job in a positive way, was negatively associated with exhaustion upon returning to work (Fritz & Sonnentag, 2005). This may act as a form of positive reappraisal of the environment and may also lead to resource replenishment or resource gain. Empirical evidence has shown that social activity during the weekend was associated with well-being after the weekend, presumably due to individuals drawing additional resources from their social support network (Fritz & Sonnentag, 2005). Rook and Zijlstra (2006) showed that physical activities (i.e., exercise) during evening time away from work were negatively related to fatigue at the end of the day, and they concluded that this indicated that physical activities were beneficial for the recovery process.

However, certain experiences while away from work can have a negative impact on well-being upon returning to work, and these activities are believed to inhibit the recovery process. Rather than being removed from job stressors when individuals are away from work, these experiences actually impose further stressors/demands and thus draw additional resources (Fritz & Sonnentag, 2006). Empirical evidence has confirmed these expectations. Nonwork hassles, ongoing stressors experienced in daily life such as accumulated housework, conflicts with a partner, or car problems, impair the process of rebuilding resources because they are additional stressors. Therefore, it is not surprising that nonwork hassles during the weekend were related to poor well-being after the weekend (Fritz & Sonnentag, 2005). Negative work reflection, which may serve as a negative appraisal of the environment, also interfered with replenishment of resources and was associated with impaired well-being following a vacation (Fritz & Sonnentag,

2006). Essentially, recovery research attempts to understand activities that are resource-rebuilding and facilitate returning to a state of well-being versus activities that are resource-draining and further impair well-being.

While recovery research has emphasized resource replenishment as a means to improve well-being, there are other avenues available for minimizing a net loss of resources over time which should not be overlooked. Either reducing initial loss of resources or facilitating gains of resources would also serve to minimize a net loss. The current study will draw from COR theory and consider dispositional (personality traits) and contextual resources (social support) which serve to reduce initial loss or facilitate gain of energies and other resources. Thus, the net loss of resources will be minimized and an individual would experience less resource depletion (i.e., need for recovery).

Personality Traits as Dispositional Resources

Hobfoll (1989) suggested that personality traits may serve as resources in the stress process, although he did not specify the exact mechanism by which they would do so. A frequent occurrence in research utilizing COR theory is to describe certain variables as resources simply by their conceptualization as something inherently “good” that relates to a positive outcome, or as objects which are affected by other variables. This use of resources in both ways leads to confusion over the term “resources” and does not really explain potential underlying mechanisms. In the current study, personality traits and social support will be referred to as dispositional and contextual resources, respectively. It will be argued that *these dispositional and contextual resources* will reduce initial loss or facilitate gain of *other resources*. In order to understand the mechanisms by which dispositional resources might predict a lower need for recovery, a

review of different models from the personality and stress literature will be presented. The purpose of this review is to consider rationales for why dispositional resources would predict need for recovery, rather than simply relying on a circular argument that resources are inherently good and will relate to good outcomes. However, the focus of the current study will be to examine relationships between traits and need for recovery.

The Role of Personality in the Stress Process

Personality traits can be broadly described as individual differences in both consistent behavioral patterns and within-person emotional, motivational, and cognitive processes (Burger, 2000). Personality traits have long been considered to play an important role in the stress process. However, Grant and Langan-Fox (2007) have noted that, despite a wealth of investigations of personality traits, stressors, and stress outcomes such as health, there is not widespread agreement on the specific role played by personality traits. Furthermore, much of this research has been in the domain of general life event stressors and health rather than the job stress context specifically.

Grant and Langan-Fox described the various hypothesized roles that personality traits can play in the stress process in terms of models that emphasize direct (additive) effects, indirect (mediated) effects, and moderated (interactive) effects. As noted by Suls and Rittenhouse (1990), given the complex nature of this process, personality is not limited to playing only one role. This is the case with some of the more complex models which can combine mediated and moderated effects in various ways to describe how objective stressors, perceived stressors, personality, coping behavior, psychological and physical strain may relate to each other (e.g., Wiebe & Smith, 1997).

Direct or additive effect models propose that personality affects strain directly. The basic belief is that certain traits are a strength or weakness which will lead to strains directly and independently of stressors, although stressors may also have an effect on strains (Grant & Langan-Fox, 2007; Parkes, 1994). Research emphasizing relationships between traits and health outcomes follow this model (e.g., Benyamini & Roziner, 2008; Grant & Langan-Fox, 2007; Kern & Friedman, 2008; Makikangas, Kinnunen, & Feldt, 2004).

Indirect or mediated effect models claim that the personality-strain relationship is mediated by stressors or health behaviors (Grant & Langan-Fox, 2007). These models attempt to identify variables that link personality to strain, usually indicating that personality leads to stressors (either objective or perceived) or that personality leads to a choice of health behaviors which then affect strain. These indirect or mediated effect models are essentially an extension of a direct effect model. While direct effect models basically draw a connection from personality to health or strain, these mediated models attempt to clarify mechanisms underlying the personality-strain relationship by including explanatory mediating variables. When Grant and Langan-Fox referred to direct, mediated, and moderated effects, personality is the “cause” in the direct effect model and the moderator in the moderated effect model. However, it is important to note that personality is not the mediator in an indirect or mediated effect model. In the framework of the current review, indirect or mediated effect models will be considered an extension of a direct effect model.

The first of these mediated models has been referred to as the selection mechanism or stressor creation mechanism (Spector, Zapf, Chen, & Frese, 2000) and has

been alternatively referred to as the differential exposure model (Bolger & Zuckerman, 1995). These models suggest that personality may lead a person to experience more objective stressors due to the person selecting him/herself into more stressful jobs or creating stressors through his or her own negative behavior (Spector et al., 2000; Wiebe & Smith, 1997; Parkes, 1994; Suls & Rittenhouse, 1990). This idea is consistent with the concepts of selection, evocation, and manipulation (Buss, 1987). The proposition that people merely respond to situations they encounter is no longer tenable. Individuals may actively seek out or avoid certain situations, provoke responses from their environment unintentionally through their own behavior, or intentionally modify their own environment (Buss, 1987). As evidence for the selection notion, individuals with certain personality traits have been found in jobs with higher or lower levels of job stressors, as rated objectively by job analysts (Spector, Jex, & Chen, 1995). Additionally, it has been suggested that individuals with certain maladaptive traits may create challenges and demands in their environment through their own negative behavior (Smith & Anderson, 1986).

A second commonly mentioned mediated effect model claims that the personality-strain relationship is mediated by *perceived*, rather than objective, stressors. This has been referred to as the perception mechanism (Spector et al., 2000) and is often discussed in terms of how one appraises the environment. Personality traits lead an individual to interpret the environment as threatening or stressful and this appraisal is what leads to strain. Objective stressors may also influence one's perception, but this is conceptualized as independent from personality's effect on perception. There is some evidence to suggest that the personality-strain relationship may be fully or partially

mediated by perceived stressors (Barsky, Thoresen, Warren, & Kaplan, 2004). A variation of this is the personality-induced hyperreactivity model which claims that personality leads to appraisal, which then causes exaggerated physiological reactivity (i.e., increased blood pressure, heart rate, etc.), which over time taxes the body's organs and leads to ill health (Suls & Rittenhouse, 1990). Studies linking "Type A" personality to coronary heart disease follow this type of model (see Contrada, Leventhal, & O'Leary, 1990).

Finally, the moderated effect (or interactive) models describe personality as a moderator which may strengthen or weaken the various links in the stressor-strain relationship (e.g., Korotkov, 2008). These models are different from the direct (or additive) and the mediated effect models because they presume that personality interacts with stressors in some way. Personality can moderate the relationship between objective and perceived stressors (Gunthert, Cohen, & Armeli, 1999; see Wiebe & Smith, 1997 and Parkes, 1994 for discussion), such that a trait influences the appraisal of the environment as threatening and strengthens or weakens the relationship between objective events and the perception of an event as a stressor. Stress-moderation models also propose that personality can moderate the relationship between perceived stressors and the person's response, often in the form of various coping behaviors (Parkes, 1986; see Wiebe & Smith, 1997 and Parkes, 1994 for discussion). Furthermore, personality can moderate the relationship between perceived stressors and strain (Korotkov, 2008), sometimes referred to as the hyperresponsivity mechanism (Spector et al, 2000).

There are a couple of other models to also note. The constitutional predisposition model put forth the notion that both personality and health are determined by a third

variable, innate reactivity of the sympathetic and parasympathetic nervous system. This model claims that this genetic characteristic determines both the expression of personality and illness susceptibility. Thus, observed relationships between personality and health are spurious, because both are merely a byproduct of a genetic predisposition (as reviewed by Wiebe & Smith, 1997; Suls & Rittenhouse, 1990). However, there is little empirical evidence for this model. Suls and Rittenhouse (1990) have noted that supporters usually cite evidence of heritability of personality (e.g., Bouchard, 2004). An additional model, known as the illness behavior model, maintains that personality affects illness behavior (a reaction to perceived illness such as symptom reporting) rather than actual illness (see Wiebe & Smith, 1997). Symptom reporting is not solely determined by actual symptoms, but also by personality tendencies to pay attention to physiological sensations and interpret these as illness. A highly similar model is referred to as the symptom perception hypothesis, which asserts that certain individuals are more likely to attend to physical sensations and complain about perceived, but possibly illegitimate, physical health problems (Watson & Pennebaker, 1989). In sum, there are several potential roles for personality traits in the stress process. While there is no definitive answer, it is useful to discuss potential mechanisms in considering how personality may relate to need for recovery.

The current study will consider personality traits which have established relationships with health and/or have been frequently investigated in the stressor-strain process. The expected relationship of conscientiousness, emotional stability, optimism, and self-esteem with need for recovery will be reviewed in terms of potential explanatory mechanisms by drawing from the COR concept of resource loss as well as various stress

models. These traits will be conceptualized as dispositional resources that may reduce one's need for recovery. The common tenet is that these personality traits will minimize a net loss of an individual's total resources, either by reducing initial loss of other resources, such as energies, or by facilitating gain of other resources. Proposed mechanisms for the personality-need for recovery relationship will be reviewed for each trait, primarily considering the direct and indirect effect models as well as the moderated effect models. Mechanisms underlying personality's role in the stress process are considered in order to better understand how the dispositional resources may have an effect on other resources, and thus provide potential explanations for relationships with a lesser need for recovery. The scope of the current study is not to empirically test each of these models, but to establish a relationship between these dispositional resources and need for recovery for future research to explore further. Figure 1 displays the conceptual model tested in the current study.

Conscientiousness

The personality trait of conscientiousness has been described as a tendency to be well-organized, self-disciplined, plan-adhering, careful, thorough, hardworking, and persevering (McCrae & Costa, 1987). According to Costa, McCrae, and Dye (1991), facets such as competence (capable, sensible, accomplished), order (tidy, well-organized), dutifulness (adherence to standards for proper behavior), achievement striving (drive for excellence), self-discipline (persistence), and deliberation (planning, caution, thoughtfulness) comprise the broader construct of conscientiousness.

Direct and indirect effects

Following from a direct effect model, researchers have investigated the predictive power of conscientiousness on physical and mental health outcomes and have identified negative relationships with substance use disorders, anxiety disorders (Trull & Sher, 1994), and depression (Anderson & McLean, 1997; Trull & Sher, 1994), and a positive relationship with longevity (Kern & Friedman, 2008). Although conscientiousness is not often considered in the job stress context, conscientiousness has a well-established relationship with performance, both on the job (Barrick & Mount, 1991) and in an academic setting (Ozer & Benet-Martinez, 2006). Ineffective performance can be conceptualized as a job-related strain (Ivanevich & Matteson, 1980), or a stress-related behavioral outcome (Beehr & Newman, 1978). This tendency toward self-discipline, achievement striving, and organization in one's life may lead an individual to drain fewer resources or energies in attempting to meet achievement-related goals and thus be related to less need for recovery.

Various indirect/mediated effect models are also possible and provide more of a rationale as to why conscientiousness would relate to strains. These models basically take the conscientiousness-health/strain relationship a step further to explain the underlying mechanism. Alternatively to the "poor performance as strain" argument, ineffective performance could be considered a stressor. Based on the logic of the stressor creation mechanism, low levels of conscientiousness may lead to poor performance, a stressor which could have an effect on one's physical and mental health. It is also plausible that conscientiousness leads to perceived stressors. Highly conscientious individuals have a natural tendency toward planning, organizing, time management, self-discipline, and achievement. In contrast, these tendencies are lacking in low conscientious individuals.

Because they lack these performance-facilitating tendencies, low conscientious individuals may perceive more stressors in their environment, independently from the effect objective stressors will have on these perceptions. If low conscientious individuals experience more stressors (either objective or perceived), then they would be expected to drain more cognitive, emotional, or energy-related resources and, therefore, experience a greater need for recovery.

Moderated effects

Conscientiousness has also been proposed as a moderator in the stress process. Korotkov (2008) found that conscientiousness moderated the relationship between stressors and strains, such that highly conscientious individuals experienced less physical strains when in the presence of general life event stressors. Some researchers have suggested that this moderating role is due the trait's associations with different types of coping behavior. Conscientiousness has been associated with more positive coping behavior, such as problem-solving coping (Connor-Smith & Flachsbart, 2007; O'Brien & DeLongis, 1996), and less negative coping behavior, such as emotion-focused or avoidance coping (O'Brien & DeLongis, 1996). When faced with job stressors such as high job demands, conscientiousness may buffer the impact of stressors on strains via a tendency to engage in more positive coping behavior. Thus, conscientiousness may facilitate gain of additional resources that resolve stressful situations (e.g., through problem-solving rather than avoidance coping), thus minimizing a net loss of resources.

Conscientiousness could be considered a moderator of the objective-perceived stressor relationship. Highly conscientious individuals may appraise the environment as less "stressful" because they have the skills (i.e., planning, self-discipline, achievement)

needed to manage stressors such as high workload. Therefore, they would perceive fewer stressors while low conscientious individual might perceive more stressors, even in the same environment. These low conscientious individuals may drain more energy resources because they perceive more of a threat that needs to be dealt with, and thus they would experience more need for recovery.

In summary, it would be typical of studies utilizing COR theory to assert that conscientiousness is a clearly a “resource” because it is a positive trait, “resources” are positive assets, and thus the trait would be related to other positive outcomes. However, consideration of the potential roles the trait may play in the stress process provides some logical reasons for why high conscientious individuals would be expected to experience less resource drain (i.e., need for recovery) as compared to their low conscientious counterparts. As reviewed above, low conscientiousness may affect resource drain directly, because these individuals lack the behavioral tendencies which facilitate achievement. Indirect models would suggest that a low conscientious individual would experience more stressors or engage in unhealthy behavior, and therefore would drain more cognitive, emotional, or energy-related resources. Finally, low conscientiousness may exacerbate the effect of stressors on an individual’s total resource drain. These various mechanisms for the role of conscientiousness in the stress process offer potential explanations for why conscientiousness may serve to reduce initial resource loss or facilitate additional resource gain in the presence of job stressors.

Hypothesis 1a: Conscientiousness at Time 1 will be negatively related to need for recovery at Time 1.

Hypothesis 1b: Conscientiousness at Time 1 will be negatively related to need for recovery at Time 2 while controlling for need for recovery at Time 1.

Emotional Stability

Emotional stability is usually considered as the equivalent of low neuroticism (Digman, 1990), and neuroticism is broadly defined as a tendency to experience negative emotions (McCrae & Costa, 1987). Individuals who are high in emotional stability tend to be calm and experience less negative affect than their counterparts. The key elements of this trait are low negative affect, distressing thoughts, and related problematic behavior (McCrae & Costa, 1987). Although this trait is often studied and discussed in terms of high levels of neuroticism, emotional stability (or low levels of neuroticism) will be considered the dispositional resource in the current study.

Direct and indirect effects

In considering the role of emotional stability in the stress process, different models have been proposed. There is evidence to suggest positive relationships between emotional stability and physical health (Grant and Langan-Fox, 2007) as well as mental health (Trull & Sher, 1994) and well-being (Moyle, 1995). These explanations follow the direct effect model. A significant challenge to the emotional stability-health relationship (or research on the role of this trait in the stress process in general) is the illness behavior model (Wiebe & Smith, 1997) and the related symptom perception hypotheses (Watson & Pennebaker, 1989) which argue that neuroticism is associated with perceived rather than actual illness. Watson and Pennebaker have provided evidence to suggest that low emotional stability (neuroticism) is associated with unfounded illness. However, more recent reviews have suggested that this trait does play a role in actual physical illness

(Suls & Bunde, 2005). Low emotional stability individuals tend to experience negative emotions such as anxiety. Attempting to improve one's emotional state requires effort and energy resources, and these individuals would be expected to drain more of these resources and experience a greater need for recovery. In addition to direct effect models, there are several other logical explanations for the role that emotional stability plays in the stress process and how it relates to stressors and strains.

Consistent with an indirect effect model, low emotional stability may lead to an environment with more objective stressors. And, in fact, low emotional stability individuals have been found in jobs with more objective stressors (Spector et al., 1995). The reason for this is unclear, although one possible suggestion is that these individuals may be unattractive candidates for better jobs. Because of the tendency to experience negative emotions and thoughts and exhibit negative behavior, low emotional stability individuals may create more stressors for themselves. A common example is that these individuals will create more interpersonal conflict, which has been identified as a common job stressor, and which will then lead to strains (Spector et al., 2000; Wiebe & Smith, 1997).

Alternatively, it has also been suggested that individuals with low emotional stability tend to report higher levels of perceived stressors than individuals high in emotional stability, suggesting perceived stressors as a mediator of the relationship between emotional stability and strain. Moyle (1995) found that the low emotional stability-job satisfaction relationship was mediated by perceived stressors. This has been referred to as the perception mechanism (Spector et al., 2000). Individuals who are

experiencing more stressors (either objective or perceived), can be expected to drain more of their energy resources and, thus, experience a greater need for recovery.

Moderated effects

Emotional stability can also be conceptualized as playing a moderating role. For example, emotional stability may moderate the relationship between objective and perceived stressors. Gunthert, Cohen, and Armeli (1999) found that low emotional stability individuals appraised daily event stressors as more stressful than high emotional stability individuals. These individuals are likely to believe that they need to mobilize more energies and resources in order to deal with this threat, and so are likely to drain more resources. An additional moderator possibility is that emotional stability moderates the perceived stressor-strain relationship, which has been empirically demonstrated (Moyle, 1995). This moderator role is often described as in terms of the relationship that emotional stability has with various coping behavior. It has been suggested by O'Brien and DeLongis (1996) that the coping behavior low emotional stability individuals engage in serves to maintain anxiety rather than resolve the situation they have encountered. An individual high in emotional stability is likely to engage in coping behaviors that aim to actually solve the problem. In contrast, an individual low in emotional stability is more likely to engage in avoidance coping, which will merely prolong the problem. Empirical evidence has demonstrated that emotional stability is associated with more problem-focused coping and less emotion-focused or avoidance forms of coping (O'Brien & DeLongis, 1996).

In sum, there are various possibilities why individuals low in emotional stability are likely to drain more of their energies/resources as compared to individuals high in

emotional stability. These individuals may drain more cognitive, emotional, or energy resources simply through their negative affect, thoughts, and behavior. Furthermore, they may experience more stressors (either objective or perceived) which would then lead to a greater need for recovery. Finally, low emotional stability may exacerbate the effect of stressors on cognitive, emotional, or energy-related resource drain. Thus, in the context of job stressors, high emotional stability is likely associated with a reduction in the loss of an individual's total energy resources.

Hypothesis 2a: Emotional stability at Time 1 will be negatively related to need for recovery at Time 1.

Hypothesis 2b: Emotional stability at Time 1 will be negatively related to need for recovery at Time 2 while controlling for need for recovery at Time 1.

Optimism

Optimism has been described as a tendency to have more positive expectations of the future (Scheier, Carver, & Bridges, 1994). It is a rather stable and generalized tendency to believe that one will experience good outcomes versus bad outcomes in one's life (Scheier & Carver, 1985).

Direct and indirect effects

Makikangas, Kinnunen and Feldt (2004) explained that some research has suggested direct effects of optimism on better health. Researchers have identified relationships between optimism and longevity (Maruta, Colligan, Malinchoc, & Offord, 2000) as well as less mental distress (Makikangas et al., 2004). In addition, meta-analytic results have shown negative relationships between optimism and reporting of somatic complaints (Andersson, 1996). Low optimism individuals, because they lack this positive

outcome expectancy, may need to mobilize more resources in attempting to achieve their goals. Therefore, they would be expected to drain more cognitive, emotional, or energy-related resources. While some researchers have argued for direct effect models, others have taken it a step further to provide more explanation for the role of optimism in the stress process.

Carver and Scheier (1998) have discussed the role that optimism plays when working toward goals. Individuals high in optimism expect to obtain positive outcomes and, therefore, are more likely to persevere in their efforts to obtain these outcomes. This tendency to expect positive outcomes may lead an individual to perceive the environment differently from someone who does not have this positive expectation. This logic suggests a role of appraisal in the stress process in which the optimism-strain relationship may be mediated by perceived stressors. It stands to reason that individuals who are low in optimism would need to call upon other energies or resources in order to persevere toward their goals. Accordingly, these individuals low in optimism may drain more of their total resources, because they must deal with greater levels of stressors in their environment.

Moderated effects

Makikangas et al. (2004) pointed out that optimism has been described as playing a moderating role as well, whereby optimism weakens the effect of stressors on strains. Often its relationships with coping are suggested as an explanation. Optimism has shown positive relationships with constructive forms of coping such as problem-solving coping versus denial (Scheier, Weintraub, & Carver; 1986). Similarly, a recent meta-analytic review showed that optimism was positively associated with attempting to reduce or

manage stressors and emotions versus ignoring or withdrawing from stressors or emotions (Nes & Segerstrom, 2006). Rasmussen, Wrosch, Scheier, and Carver (2006) suggested that because of the belief that putting in effort will lead to positive future outcomes, individuals high in optimism will engage in more active problem solving coping, rather than withdrawing from a stressful situation. When faced with job stressors such as high job demands, optimism may reduce initial loss of resources or facilitate resource gain because individuals high in optimism are more likely to engage in coping that resolves the stressful situation.

In sum, there are a few potential mechanisms which may underlie the expected relationship between optimism and need for recovery. Low optimism individuals may drain more resources simply because they lack the positive outcome expectancy of high optimism individuals. Low optimism may lead to more perceived stressors. If individuals interpret their environment as more “stressful”, they would be expected to utilize more resources to deal with this threat and would experience a greater need for recovery. Alternatively, optimism is likely to attenuate the relationship between stressors and need for recovery because these individuals will engage in more positive coping to resolve the threat. Given this evidence, it is likely individuals high in optimism would drain less of their total resources and, therefore, will experience a lower need for recovery.

Hypothesis 3a: Optimism at time 1 will be negatively related to need for recovery at Time 1.

Hypothesis 3b: Optimism at time 1 will be negatively related to need for recovery at Time 2 while controlling for need for recovery Time 1.

Self-esteem

Self-esteem has been defined as someone's thoughts and feelings toward the self as a whole (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). High self-esteem could be described as a subjective self-evaluation of one's generally positive versus negative thoughts and feelings about one's self (Robins, Hendin, & Trzesniewski, 2001).

Direct and indirect effects

As noted by Kahn & Byosiere (1992), stress researchers interested in self-esteem have found support for direct effects of self-esteem on reduced strain. Results of recent longitudinal analyses suggested self-esteem and stressful events each operate independently to predict depression, which is consistent with a direct or additive effect model (Orth, Robins, & Meier, 2009). Grandey and Cropanzano (1999) found main effects for self-esteem on less job distress and life distress, better physical health, and lower turnover intentions. Self-esteem has also been positively associated with increases of strain such as job dissatisfaction (Lopez & Greenhaus, 1978). Because low self-esteem individuals have more negative thoughts and feelings about themselves, they would be expected to drain more cognitive, emotional, or energy-related resources.

In terms of indirect effect models, research has investigated whether the self-esteem - strain relationship is mediated by perceived stressors. The logic of this model is that individuals with high self-esteem tend to have more positive thoughts and feelings about themselves, and in turn perceive job stressors such as high demands or interpersonal conflict as less "stressful" as compared to low self-esteem individuals. Self-esteem has been associated with fewer perceived stressors (Howell, Bellenger, & Wilcox, 1987), and Howell et al. provided evidence to suggest perceived stressors may mediate the relationship between self-esteem and strain. However, Kivimaki and Kalimo

(1996) did not find evidence of this mediation effect, although low self-esteem was associated with more perceived stressors and strain. Orth, Robins, and Meier (2009) also did not find evidence for stressful events as mediator of the self-esteem - depression relationship. Although the evidence for mediated effects appears mixed, the perceived stressors-as-mediator model remains plausible. Potentially, low self-esteem would lead an individual to perceive his or her environment as consisting of more stressors, which would in turn lead to a greater loss of one's cognitive, emotional or energy-related resources, whereas high self-esteem individuals would likely experience less resource drain and the net loss of their total resources.

Moderated effects

Additionally, self-esteem has been proposed as a moderator of the stressor-strain relationship, although the evidence for this model appears mixed. Ganster and Schaubroeck (1991) found that low self-esteem firefighters who experienced role conflict reported more somatic symptoms. However, Grandey and Cropanzano (1999) did not find evidence that self-esteem moderates the perceived stressor-strain relationship.

Outside of the job stress context, diathesis-stress models of mental health disorders, such as depression, have suggested that low self-esteem and stressful events interact to yield poor mental health outcomes (Orth, Robins, & Meier, 2009). That is, the relationship between stressful life events and depression will be strengthened for individuals with low self-esteem while the stressors-strain relationship will be attenuated for high self-esteem individuals. It has been argued that different coping processes are responsible for this effect, and there is evidence of positive relationships of self-esteem with problem-focused or active coping and negative relationships with avoidance coping

(Aspinwall & Taylor, 1992). Overall, findings for the self-esteem as moderator models have been mixed. Orth et al. has pointed out that several studies have supported the self-esteem “buffering” hypothesis, but other studies have failed to support this interaction between self-esteem and stressors.

Thus, there are a few potential explanations for an expected relationship between self-esteem and one’s experience of resource drain. Low self-esteem individuals may drain more of their resource simply through their more negative thoughts and feelings about themselves. Furthermore, low self-esteem individuals may experience more stressors, which can be expected to lead to greater need for recovery because they will need to call upon more resources. An additional possibility is that low self-esteem intensifies the relationship between stressors and resource drain. These individuals tend to employ avoidance coping strategies that may prolong their problems and would be expected to experience more need for recovery.

Hypothesis 4a: Self-esteem at Time 1 is expected to be negatively related to need for recovery at Time 1.

Hypothesis 4b: Self-esteem at Time 1 is expected to be negatively related to need for recovery at Time 2 while controlling for need for recovery at Time 1.

Social Support as Contextual Resource

In addition to suggesting that personality traits would serve as resources, Hobfoll (1989) believed that social support should also act as a resource for preventing stress-related problems. Similar to the description of personality as a resource, Hobfoll did not elaborate on the specific role that social support would play in the stress process. In order to understand how social support could serve as a contextual resource and minimize a net

loss of an individual's total energy resources, it is useful to consider the potential roles of social support in the process of stressors leading to strains.

The Role of Social Support in the Stress Process

Social support has been described in a general sense as interpersonal contact with supportive others (Beehr, Farmer, Glazer, Gudanowski, & Nair, 2003). While most people seem to understand what social support is, researchers have discussed the lack of agreement on the specific meaning of the term (e.g., LaRocco, House, & French, 1980; Beehr, Jex, Stacy, & Murray, 2000). In their review of the role of social support in occupational stress, LaRocco et al. acknowledged that while there are varying types of social support (emotional, instrumental, informational), most research has investigated the effects of emotional social support. Beehr et al. (2000) described emotional support, with an emphasis on sympathy, and instrumental support, with an emphasis on aiding task accomplishment, as the most commonly studied types of social support. Different models of the role of social support in the stress process have been proposed. In order to consider the mechanisms by which social support may serve as a contextual resource to reduce loss of other energy resources, various proposed models of social support's role in the stress process will be reviewed, following the direct (additive) and indirect (mediated) as well as moderated effects framework. While it is outside the scope of the current study to empirically test all of these complex stress models, a review of these models provides some logical explanations for why social support as a contextual resource would be associated with an individual's experience of resource drain (i.e., need for recovery).

Direct and indirect effects

The direct effect models of social support have received the most empirical support. This model proposes that social support has a direct effect on strain reduction (Cohen & Wills, 1985). Individuals receiving more emotional support will be less likely to develop physical or mental health problems. Cohen and Wills suggested that social support provides regular positive experiences, thus providing positive affect and integration in a social network. In their review, Kahn and Byosiere (1992) concluded that main effects of social support on strains are typically found in stress studies. Meta-analytic results have indicated that there is a direct, negative effect of social support on strains (Viswesvaran, Sanchez, & Fisher, 1999). The above results suggested that social support may have a direct effect on an individual's resource drain. If a person has others to rely on for positive affect and experiences, then the person has access to additional emotional resources and would not drain as many of his or her own cognitive, emotional, or energy resources. Thus, the increase of social support is expected to be associated with less need for recovery.

A model which has been considered less frequently in this line of research is an indirect or mediated effect model, which proposes that the social support-strain relationship is mediated by stressors. It is important to note that social support is not the mediator. This model is basically an extension of a direct effect model because it attempts to link social support to strain via explanatory mediating variables. The logic of the model is that if an individual has more support from others, then the stressors in his or her life will be reduced, which will have beneficial effects on health (Barrera, 1986; see Dormann & Zapf, 1999 for discussion). Lankau, Carlson, and Nielson (2006) found that perceived stressors mediated the relationship between social support from a mentor and

job attitudes (job satisfaction and organizational commitment). This mediated model is not as common as the direct model or the moderated effect model described below; however, it is plausible that an individual in a low social support situation would likely encounter or experience more stressors (either objective or perceived). Then, this individual would be expected to experience more resource drain. In contrast, individuals who encounter or experience more stressors (either objective or perceived) will not need to expend as many of their resources in order to deal with the stressor, resulting in a lesser need for recovery.

Moderated effects

Another alternative proposition is that social support reduces the effect of stressors on strains, often referred to as the “buffering hypothesis” (Beehr, Farmer, Glazaer, Gudanowski, & Nair, 2003; LaRocco, House, & French, 1980). The buffering hypothesis states that as social support increases, the positive relationship between stressors and strains is reduced. Cohen and Wills suggested two potential points in the stress process where social support may serve as a buffer. They suggested that social support may attenuate the relationship between an objective stressor and appraisal (perceived stressor) so that the individual does not interpret the event to be as “stressful.” Alternatively, social support could attenuate the relationship between the perceived stressor and the individual’s strains, because the individual perceives that they have support to help them cope with the stressor. The latter possibility is the most commonly tested in terms of the buffering hypothesis.

In their review, Kahn and Byosiere (1992) concluded that the buffering hypothesis has been inconsistently supported. For example, LaRocco et al. (1980) found

that social support moderated the effect of stressors on health but did not find the moderating effect for job-related strains such as job satisfaction. In contrast, other researchers have found that social support moderated the relationship between stressors and job-related strains such as ineffective job performance (Blau, 1981) and organizational commitment (Fisher, 1985). However, in the same study, Fisher (1985) found moderating effects for supervisor support and co-worker support on organizational commitment but not for job satisfaction, professional commitment, intentions to leave the organization, or intentions to leave the profession. Fusilier, Ganster, and Mayes (1987) demonstrated main effects of social support on depression and somatic complaints as well as a buffering effect of social support on the stressors-strains relationship. In their meta-analysis, Viswesvaran et al. (1999) reasoned that there was some evidence to support the moderating effect of social support, although results were not as conclusive as for the main effects. To summarize, there has been conflicting evidence for the hypothesis that social support moderates or “buffers” the relationship between stressors and strains.

Even more curious in social support research is the existence of “negative buffering” or “reverse buffering” effects, where the relationship between stressors and strains is actually strengthened under conditions of high social support (e.g., Ganster, Fusilier, & Mayes, 1986; Kaufmann & Beehr, 1986). This finding has been difficult to explain, and has led to even more confusion about the existence of social support buffering. Although it has proved difficult to demonstrate empirically, the elusive buffering effect of social support is generally accepted. Stressors and social support may interact to result in a lesser need for recovery. An individual who experiences few stressors would not be expected to experience a great degree of need for recovery. The

role of social support may not matter as much. However, when levels of stressors increase, receiving social support would result in less total resource drain, possibly because the individual has others to rely on for the experience of positive emotion and accomplishment of tasks.

Content of Communication and Source of Support

Ganster, Fusilier, and Mayes (1986) proposed that the beneficial effects of social support may depend on factors such as the quality of support, the source of support, and the specific stressors or strains being studied. Kaufmann and Beehr (1986) suggested that if the support and stressor share the same source then strain would be exacerbated. Beehr et al. (2003) investigated whether congruence and incongruence between the source of the stressor and source of support (e.g., supervisor as stressor and supervisor as support source) could explain findings of both “positive” and “negative” (reverse) buffering effects. They found few significant interactions and those which were found were consistent with the notion of support as attenuating the stressor-strain relationship. Thus, they did not find evidence that congruence or incongruence accounted for “positive” and “negative” buffering.

Ganster et al. argued that the support must be viewed as positive. Thus, it would be inappropriate to merely obtain information about marital status, family members nearby, or the number of friends one has, because these relationships may actually be positive or negative. A similar suggestion about the importance of the quality of social support was provided by Beehr, King, and King (1990). They reasoned, as a possible explanation for the conflicting findings of “positive” buffering and “negative” buffering, that it may be important to consider *how* support recipients and support providers talk

about their work. This had been previously suggested by LaRocco et al. (1980) although not investigated empirically. Beehr et al. (1990) reasoned that the content of communication between support recipients and support providers at work can be classified as either positive job-related (discussing positive aspects of the job), negative job-related (discussing negative aspects of the job), or non-job-related (discussing things unrelated to the job). They found that the positive and non-job-related communications were perceived as supportive by the employees. Beehr et al. found main effects of social support on strains were most consistent for the positive-job-related communications. Similarly, Fenlason and Beehr (1994) suggested that positive communications have the most beneficial effect. Glaser, Tatum, Nebeker, Sorenson, and Aiello (1999) also suggested that complaining about one's work would be a form of social support which would actually increase strains. Additionally, Fenlason and Beehr claimed that the content of communications was a more focused conceptualization of social support, and Beehr et al. (1990) believed that considering the content of communication of social support could be useful, although they were unable to demonstrate negative buffering for the negative-job-related communication. In the current study, social support will be conceptualized with the content of communications, and the relationship between social support as positive contents of communications and resource drain will be specifically considered. This will be referred to as *positive social support*.

Researchers have also considered social support in terms of various sources of support such as family, friends, supervisors, or co-workers and have suggested that it is important to distinguish between different sources of support. LaRocco et al. (1980) had suggested that work-related sources of support were more important, and Ganster et al.

(1986) found that effects of social support on affective and somatic outcomes were strongest for supervisor support. In a meta-analysis of the relationship between social support and the work-related strain of burnout, Halbesleben (2006) found that support from work-related sources (i.e., supervisors and co-workers) provided greater strain reductions in the form of decreased exhaustion as compared to non-work-related sources such as family and friends. This effect was strongest for support from supervisors. Thus, positive social support from supervisors will be the focus of the current study.

In sum, there are a few potential reasons why individuals who receive positive social support from supervisors may experience less drain of their cognitive, emotional, or energy-related resources. These individuals may drain fewer resources because this positive social support facilitates the experience of positive emotions. Alternatively, positive social support may lead to fewer perceived stressors, or a more positive appraisal of the environment, because the individual is directed to think about the positive aspects of his or her work. An individual who experiences their environment as less stressful would not need to mobilize as many resources to deal with a threat, and thus would experience less resource drain. An additional possibility is that positive social support would attenuate the effects of stressors on an individual's need for recovery. Individuals receiving positive social support from supervisors would be expected to drain less of their cognitive, emotional, or energy-related resources as compared to individuals who do not receive this positive social support.

Hypothesis 5a: Positive social support from supervisors at Time 1 will be negatively related to need for recovery at Time 1.

Hypothesis 5b: Positive social support from supervisors at Time 1 will be negatively related to need for recovery at Time 2 while controlling for need for recovery at Time 1.

Interaction of Dispositional and Contextual Resources

Lazarus, DeLongis, Foldman, and Gruen (1985) discussed that individual difference variables (e.g., values, traits) and environmental variables (e.g., demands, social support) may interact in producing appraisals (i.e., the perceived stressor). Lazarus et al. went on to state that this appraisal would then affect coping behaviors and the ultimate outcomes of health and well-being. While the interaction of personality and stressors as well as social support and stressors has been considered in the stress literature, the potential interaction of personality and social support has not been investigated frequently. Cieslak (2007) found that high social support from supervisors interacted with low neuroticism (emotional stability) to predict fewer perceived stressors one month later. Parkes (1986) considered how social support and the trait of extraversion might interact to affect coping behavior. Parkes reasoned that in the presence of high social support, extraverts would be expected to experience less strains as compared to introverts; however, with low social support, extraverts would experience more strains than introverts. Although the interaction term was nonsignificant, the effect was in the expected direction. These findings suggest that personality and social support may interact to predict perceived stressors or coping behaviors, which would then be expected to affect strains.

As hypothesized above, both dispositional and contextual resources are expected to have a negative relationship with one's need for recovery. However, in a case where an

individual is relatively low on dispositional resources such as conscientiousness, emotional stability, optimism, or self-esteem, positive social support may provide additional resources in daily activities. Consequently, having high versus low positive social support would be expected to relate to a greater reduction in need for recovery when people are low in the above dispositional resources. In other words, the negative relationship that is expected between dispositional resources and need for recovery would be *weakened* when social support is high. Furthermore, individuals who are high in these dispositional resources could drain even less of their resources where they receive positive social support. In sum, individuals who are low on these dispositional resources would experience a greater benefit from receiving positive social support from supervisors, as compared to individuals who possess these dispositional resources.

Hypothesis 6a: Positive social support from supervisors at Time 1 will moderate the relationship between each dispositional resource and need for recovery at Time 1. The negative relationship between dispositional resources and need for recovery would be smaller when positive social support is high compared to when positive social support is low.

Hypothesis 6b: Positive social support from supervisors at Time 1 will moderate the relationship between each dispositional resource and need for recovery at Time 2 while controlling for need for recovery at Time 1. The negative relationship between dispositional resources and need for recovery would be smaller when positive social support is high compared to when positive social support is low.

CHAPTER 2

METHOD

Participants

The current study is part of a larger longitudinal investigation of the process of adjustment in early-career nurses. The study began when students entered nursing school and will follow them through their second year as a professional nurse, a period of three to five years. Nurses have been found to experience particularly high levels of occupational stress (Gelsema, Van der Doef, Maes, Akerboom, & Verhoeven, 2005), and their mental and physical health is a major concern. In contrast to typical university education, nursing school has both an academic and clinical emphasis from the very beginning. Students must manage their clinical rotations in addition to their coursework. Thus, they experience academic stressors in addition to practical stressors which shares great similarity with the tasks of an employed nurse (Rhead, 1995). Nursing students at a university in the Rocky Mountain region ($n=91$) were included in this portion of the study. Participants' ages ranged from 19 to 52, with a mean age of 24.2 (SD = 6.3 years). 87 percent were female and 84 percent identified themselves as Caucasian. 17 percent had at least one child, and 34 percent reported working at least 20 hours per week at a job.

Measures

Conscientiousness. A ten-item measure of conscientiousness from the International Personality Item Pool (IPIP; Goldberg, 1999) was used at Time 1. Response

options ranged from 1 = “Strongly disagree” to 5 = “Strongly agree,” and items were reverse coded as necessary so that higher scores would indicate a higher level of conscientiousness. Example items include, “I am always prepared” and “I carry out my plans.” The IPIP scale has been shown to correlate highly with the NEO-PI-R domain score ($r = .77$), and the measure has demonstrated good internal consistency ($\alpha = .81$; International Personality Item Pool, 2001). The measure has demonstrated a small relationship ($r = -.15$) with the behavioral criterion of speeding, a small-moderate relationship with the behavior of vandalism ($r = -.26$), and a moderate relationship with the behavior of letting work pile up ($r = -.50$) (Buchanan, Johnson, & Goldberg, 2005).

Emotional Stability. A seven-item measure of emotional stability used seven out of ten items from the International Personality Item Pool (IPIP; Goldberg, 1999) at Time 1. This measure was modified due to three items having substantial content overlap with items from the Rosenberg self-esteem scale. Response options ranged from 1 = “Strongly disagree” to 5 = “Strongly agree,” and items were reverse coded as necessary so that higher scores would indicate a higher level of emotional stability. Example items include, “I am not easily bothered by things” and “I panic easily” (reverse coded). The IPIP scale has been shown to correlate highly with the NEO-PI-R domain score ($r = .82$), and the measure has demonstrated good internal consistency ($\alpha = .81$; International Personality Item Pool, 2001). The measure has demonstrated moderate to moderate-strong relationships with job satisfaction ($r = .27$), physical health ($r = .29$), and mental health ($r = .65$) (Buchanan, Johnson, & Goldberg, 2005).

Optimism. The Life Orientation Test-Revised (Scheier, Carver, & Bridges, 1994) was used to assess optimism at Time 1. Participants responded to six items using a scale

from 1 “Strongly Disagree” to 5 “Strongly Agree.” The six optimism items were used to calculate a scale score. Example items include “In uncertain times, I usually expect the best” and “Overall, I expect more good things to happen to me than bad.” Items were reverse coded as necessary so that higher scores would indicate higher levels of optimism. Scheier, Carver, and Bridges (1994) reported good internal consistency of this measure ($\alpha = .78$) as well as test-retest reliability across 4, 12, 24, and 28 months with correlations of .68, .60, .56, and .79, respectively. Correlations between optimism and related traits (self-mastery, trait anxiety, neuroticism, self-esteem) were in the moderate range ($\sim .4$ -.5), providing discriminant validity evidence that while optimism is related to these other traits, it is not redundant with them. Additionally, optimism remained a significant predictor of important variables such as depression and active coping while controlling for these related predictors (Scheier, Carver, & Bridges, 1994).

Self-esteem. The revised edition of the Rosenberg Self-esteem Scale (Rosenberg, 1989) was used to assess self-esteem at Time 1. Response options ranged from 1 “Strongly Disagree” to 5 “Strongly Agree.” Items were reverse coded as necessary so that higher scores would indicate higher levels of self-esteem. Example items include “I feel that I’m a person of worth, at least on an equal plane with others” and “I feel that I do not have much to be proud of.” Previous research has indicated good internal consistency of this measure ($\alpha = .88$ -.90) as well as test-retest reliability correlations with a mean $r = .69$, averaged across 15 possible time interval comparisons of 6 assessment points (Robins, Hendin, & Trzesniewski, 2001). Additionally, this measure has shown moderate relationships ($\sim .3$ -.5) with important outcomes such as life satisfaction and depression, and small-moderate relationships ($\sim .15$ -.3) with domain-specific self-evaluations,

consistent with the acknowledgment that global self-esteem is related but not identical to domain-specific evaluations of one's abilities (Robins, Hendin, & Trzesniewski, 2001).

Positive social support. Beehr, King, and King's (1990) 4-item positive content of communications with supervisors scale was used to assess social support at Time 1. In order to maintain relevance for the sample of nursing students, the term "supervisor" was changed to "faculty." Items were revised to refer to "the program." An example item includes, "We talk about the rewarding things of being a part of this program." Response options ranged from 1 "Never" to 5 "Always." The measure has demonstrated acceptable internal consistency ($\alpha = .80$). Convergent validity evidence was found for the measure in terms of a moderate positive relationship ($r = .44$) with functional supervisor support (a combination of emotional and instrumental support). Additionally, the measure demonstrated moderate relationships ($\sim .3-.5$) with important outcomes such as job satisfaction, satisfaction with supervisor, depression, and emotional exhaustion.

Need for Recovery. Cunningham's (2008) 7-item *Need for Resource Recovery* scale assessed cognitive, emotional, or energy-related resource drain/need for recovery at Time 1 and Time 2. Example items are, "I have been working so hard today that I am losing my ability to concentrate on what I am doing", and "It will be difficult for me to show interest in other people when I finish working on schoolwork today." Response options ranged from 1 = "Not at all accurate" to 5 = "Completely accurate." This measure has demonstrated a moderate relationship with fatigue ($\sim .5$), indicating that while the two constructs are related, need for recovery is not redundant with fatigue.

Procedure

The Time 1 survey was completed after students had been in their nursing program for about one month. This point in time was selected because it was early enough to serve as a baseline for the students and would also ensure that the students had enough experience in the program so that survey items about the program would be relevant. In addition to being around the halfway point of their nursing education, the Time 2 survey took place toward the completion of the students' critically important and anecdotally "stressful" medical/surgical clinical rotation. The Time 2 survey was completed between eight and eleven months later. The retention rate from Time 1 to Time 2 was 80 percent. A series of independent *t*-tests was conducted to assess whether participants who completed the Time 2 survey differed from participants who did not complete the Time 2 survey. Results revealed that these two groups did not differ on any of the variables measured at Time 1.

A two-wave design was used in order to better understand the relationships among variables across time. Rather than only looking at relationships among variables at one point in time, the two waves of data allow for testing of hypotheses across points in time while controlling for previous measures of the dependent variable of interest. This method can remove the effects of occasion factors such as mood and background variables (Zapf, Dormann, & Frese, 1996). Zapf et al. provided the example scenario whereby mood may artificially inflate a correlation between the two variables at Time 1 when the relationship between these two variables was truly zero and there was no true causal relationship. In this case, one might observe a correlation between the Time 1 predictor and Time 2 dependent variable, assuming some stability of the dependent

variable, although in reality the effect is zero. However, partialling the Time 1 dependent variable from this relationship would eliminate this effect.

CHAPTER 3

RESULTS

First, patterns of correlations among variables will be discussed briefly. Then, results will be presented for test of hypotheses between dispositional resources and need for recovery. Next, results for contextual resources and need for recovery will be presented. Finally, results of the interaction of dispositional and contextual resources will be presented.

Means, standard deviations, ranges, correlations among all variables, and alpha coefficients for all scales are presented in Table 1. All alpha coefficients are acceptable (α s = .75 to .94). Moderate correlations (r s = .36 to .55) were found between the four personality variables. Each of these personality variables each has a small to moderate and negative zero-order correlation with need for recovery at Time 1 (r s = -.27 to -.37) and a less strong zero-order correlation with need for recovery at Time 2 (r s = -.05 to -.28). Stronger correlations would be expected if need for recovery is highly trait-related. Positive social support demonstrated a small to moderate and negative relationship (r s = -.18 to -.19) with need for recovery at both Time 1 and Time 2. The relationship between Time 1 need for recovery and Time 2 need for recovery is moderate as well (r = .43). This correlation is consistent with test-retest correlations of other state measures (cf., Zuckerman, 1983; Spector, Chen, & O'Connell, 2000). This moderate correlation between Time 1 and Time 2 need for recovery suggests that perhaps there is both fluctuation in one's experience of need for recovery as well as some stability in need for

recovery. The stability could be due to stable factors of the person, the environment, or both. The results suggest that the relationship between traits and need for recovery was not as strong as was expected. These findings will be discussed further after tests of hypotheses are presented.

Relationships between Dispositional Resources and Need for Recovery

Hypothesis 1 predicted the negative relationship between conscientiousness and need for recovery at both Time 1 and Time 2. Consistent with hypothesis 1a, conscientiousness significantly predicted Time 1 need for recovery ($r = -.36$) as presented in Table 2. While there was a significant zero-order correlation between conscientiousness and Time 2 need for recovery ($r = -.28$), conscientiousness was not a significant predictor of Time 2 need for recovery while controlling for Time 1 need for recovery, which failed to support hypothesis 1b.

A negative relationship between emotional stability and need for recovery was proposed in hypothesis 2. Similar to the findings for conscientiousness, emotional stability significantly predicted Time 1 need for recovery ($r = -.37$) which supported hypothesis 2a. Though not quite statistically significant, emotional stability demonstrated a negative relationship ($r = -.19$) with Time 2 need for recovery. However, emotional stability failed to predict Time 2 need for recovery when Time 1 need for recovery was controlled. Therefore, hypothesis 2b was not supported, as presented in Table 2.

Hypothesis 3 expected a negative relationship between optimism and need for recovery. Hypothesis 3a was supported because optimism significantly predicted Time 1 need for recovery ($r = -.31$). The zero-order correlation between optimism and Time 2 need for recovery was small ($r = -.08$). Thus, it is not surprising that when Time 1 need

for recovery was controlled, optimism did not predict Time 2 need for recovery. Thus, hypothesis 3b was not supported, as shown in Table 2.

Hypothesis 4 proposed a negative relationship between self-esteem and need for recovery, and these results are also shown in Table 2. It was found that self-esteem significantly predicted Time 1 need for recovery ($r = -.27$), which supported hypothesis 4a. Similar to optimism, the zero-order correlation between self-esteem and Time 2 need for recovery was small ($r = -.05$). Thus, when controlling for Time 1 need for recovery, self-esteem failed to predict Time 2 need for recovery. Hypothesis 4b was not supported. Thus, while dispositional resources were negatively related to need for recovery at Time 1, the dispositional resources failed to predict Time 2 need for recovery when Time 1 need for recovery was controlled.

Relationship between Positive social Support and Need for Recovery

Hypothesis 5a stated that positive social support from faculty would be associated with Time 1 need for recovery, and hypothesis 5b stated that positive social support from faculty would predict Time 2 need for recovery while controlling for Time 1 need for recovery. Though not quite statistically significant, positive social support demonstrated a negative zero-order correlation with Time 1 need for recovery ($r = -.19$) and with Time 2 need for recovery ($r = -.18$). Further, positive social support was not a significant predictor of Time 2 need for recovery when controlling Time 1 need for recovery, as shown in Table 2. Thus, neither of these hypotheses was supported.

Interaction of Dispositional and Contextual Resources

Hypothesis 6 stated that there would be a significant interaction between each dispositional resource and positive social support for predicting Time 1 need for recovery

and also for predicting Time 2 need for recovery. Predictors were centered at their means before computing the interaction terms. Although none of the interaction terms were significant in predicting Time 1 or Time 2 need for recovery, the general trend supported the prediction. Specifically, nursing students experienced the lowest need for recovery when both the trait and positive social support were high and the greatest need for recovery when both the trait and social support were low. Results of these moderated regression analyses are presented in Tables 3.

CHAPTER 4

DISCUSSION

The results of this study provided mixed support for the hypotheses. The dispositional resources considered in this study were negatively related to Time 1 need for recovery. However, the more important finding is that dispositional resources did not predict Time 2 need for recovery while controlling for Time 1 need for recovery. Positive social support was not a significant predictor of either Time 1 or Time 2 need for recovery. Additionally, the interactions of dispositional variables and positive social support were not significant in predicting need for recovery at Time 1 or Time 2. While initial expectations regarding personality, social support, and need for recovery were not entirely met, the results of this study deserve consideration.

The current study adds to the literature in two important ways. First, while previous research has concentrated on demonstrating that need for recovery is driven by environmental factors such as job demands, lack of control, or work hours (e.g., De Croon, Sluiter, & Frings-Dresen, 2003), the current study considered whether need for recovery is also related to personality traits and social support. These hypotheses were based on literature suggesting various mechanisms and models whereby both personality and social support would be related to strain. Therefore, it was anticipated that need for recovery, which prior literature has demonstrated as an early indicator of strain, would be related to these traits and support. In addition to utilizing these models and mechanisms from the literature, this study built on the COR theory to suggest additional methods by

which net resource loss could be minimized. While the emphasis in recovery research using COR theory has been on resource replenishment through engaging in recovery activities (e.g., Sonnentag & Fritz, 2007), this study considered whether personality traits and social support might reduce initial resource loss. However, evidence from this study showed that need for recovery is not highly related to these traits or social support across time, at least directly, and this is an important finding for the need for recovery literature.

Second, the results of this study indicated that need for recovery shows some degree of stability over a time period of several months. Need for recovery is considered to be a state of cognitive, emotional, or energy-related resource drain, and was assessed by asking nursing students to report how they feel “right now” . The moderate correlation between need for recovery at Time 1 and at Time 2 is consistent with other state measures such as state anxiety (e.g., Spector et al., 2000). It seems that some factor is contributing to this degree of stability of need for recovery, and evidence suggests that this factor may not be traits or social support. This finding leads us to consider variables that contribute to the stability of need for recovery. Perhaps it is environmental factors that are more important in predicting need for recovery. However, it becomes much more complicated than discussing whether need for recovery is determined by traits, the environment, or both, due to the complex ways that a person’s traits may interact with the situation.

Implications

There are key implications which have emerged from this study. First, as noted by many stress researchers (e.g., Sonnentag & Frese, 2003; Zapf et al., 1996), it is necessary to look beyond cross-sectional data. In this current study, without measuring need for

recovery at both Time 1 and Time 2, we might have incorrectly concluded a stronger degree of trait-relatedness in need for recovery. With data from only one point in time, it would not be possible to control variance associated with possible occasion factors. The two-wave data allowed for investigation of the relationship between Time 1 predictors and Time 2 need for recovery when Time 1 need for recovery was controlled. As discussed by Zapf et al. (1996), this can remove the effects due to occasion factors such as mood. If measures of predictors and Time 1 need for recovery were influenced by mood, then the relationship between them may be inflated because is it due to this occasion factor. Evidence from the current study suggests that need for recovery is not highly related to traits or initial social support from faculty.

Second, given that the results imply that need for recovery is not highly related to traits, this might lead one to think that need for recovery is determined to a greater degree by the situation. However, it could also be the case that need for recovery is determined by a more complex combination of dispositional and situational factors. It is not possible to confirm that traits do not play any role, because even if need for recovery is more related to situational factors such as work demands, it remains possible that these demands are influenced by or interact with traits. As described in the literature review for this study, models of the stress process can become very complicated with mediated and moderated effects (e.g., Wiebe & Smith, 1997). Traits can interact with the environment to affect one's interpretation of stressors (Gunthert, Cohen, & Armeli, 1999) or one's response to a stressor (Korotkov, 2008). Potentially, some students in this study were experiencing higher subjective work demands than others and this was creating higher levels of need for recovery. This experience of higher demands could be due to truly

higher demands or it could be due to interpretation of the demands. Therefore, the objective demands could be interacting with personality or social support to yield higher subjective demands. Additionally, the demands may interact with personality to produce a heightened response to the situation. Thus, it is still uncertain whether need for recovery is related to traits, the situation, or both. Another possibility is that people may select into certain situations or create stressors through their interactions with the environment (Spector et al., 2000; Wiebe & Smith, 1997; Parkes, 1994; Suls & Rittenhouse, 1990). Researchers acknowledge that stress is a complex process involving multiple variables interacting over time. In this study traits did not have a strong direct impact on need for recovery, but it remains a possibility that their effect is just more complicated.

A related issue is to understand exactly what occurs when Time 1 need for recovery is controlled. Zapf et al. (1996) discussed how correlations within a time point could be produced by mood, whereas correlations across time would not be attributable to mood because it is unlikely an individual is in the same mood several months later. The authors stated that part of the mood effect is carried by the stability of the dependent variable, which is the rationale for controlling the Time 1 dependent variable. The same is true of background variable effects (e.g., personality), and these effects can also be removed by partialling the Time 1 dependent variable (Zapf et al., 1996). As noted by Spector et al. (2000), a basic issue in stressor-strain research is whether the relationship between stressors and strains could be produced by something the person brings to the job. They note that controlling prior strain allows control over stable third variables that may affect strain over time, and these variables could include dispositional or environmental factors. Consistency in dependent variables across time could reflect the

dispositional nature of the strains or it could also reflect consistency in the environment (Spector et al., 2000). In the current study, once possible occasion factors were controlled by removing variance associated with Time 1 need for recovery, then the traits were not significant predictors of Time 2 need for recovery. It is possible that occasion factors (e.g., mood) were removed by controlling Time 1 need for recovery; however, it is also possible that trait-related factors (i.e., variance due to stable background variables) were removed. Thus, in a sense, there could have been “too much control” by partialling Time 1 need for recovery. However, the alternative of not controlling Time 1 need for recovery might have provided inflated relationships due to occasion factors or “too little control.” Even if it could be determined that the occasion factor of mood was controlled, perhaps mood contains meaningful variance that is due to the situation at that time. In this case, mood would play a substantive role, because the situation is causing mood and then mood is influencing need for recovery. Thus, in controlling need for recovery at Time 1, it is possible that substantive variance was removed.

Limitations

The current study has its limitations. The first limitation of the study is that the participants were students in their first year of nursing school. This is a specific population which was used to investigate variables which are applicable to the general working population. For this research, the choice of nursing students was reasonable because, in contrast to university education in other disciplines, nursing school has both an academic and clinical emphasis from the very beginning. Students must manage their clinical rotations in addition to their coursework. Therefore, even though they are students, their schoolwork actually shares similarity with the tasks of an employed nurse.

Furthermore, this study focused on how personality and social support may relate to need for recovery, and these are concepts which are relevant for both students and members of the workforce. Regardless, given that it was found need for recovery may not be highly trait-related and perhaps is more situation-related, it would be important to conduct this research with other populations to determine if the findings are similar.

Another limitation is that the current study focused on traits and social support related to need for recovery in contrast to the literature which has emphasized situational factors (e.g., job demands) predicting need for recovery. Without having included work-related stressors, it cannot be determined whether these variables predict need for recovery across time or whether stressors interact with traits or support to predict need for recovery. In the current study, we can only speculate the perhaps need for recovery is determined by stressors and not traits or social support. The two need for recovery measurement points were several months apart and need for recovery was measured as a state-like construct. Perhaps it would be more reasonable to expect that situational factors at the time would have much greater weight in determining an individual's experience of need for recovery on a particular day. These stressors should have been measured at both Time 1 and Time 2. Demonstrating a lack of a strong relationship between these traits and social support and need for recovery is still an important contribution of the study, but it would have been informative to test whether stressors, personality-stressor interactions, or support-stressor interactions could predict need for recovery at Time 2. It would be important to include job stressors such as job demands, work hours, interpersonal conflicts, or lack of autonomy as predictors in a need for recovery study.

Future Research

Stress is a dynamic process which unfolds over time, and future research should continue to move toward capturing this process in longitudinal designs. The recovery literature suggests that a high need for recovery at the end of the day is not necessarily problematic provided that adequate recovery occurs before returning to one's work tasks the next day. Problems begin to occur when one's need for recovery is not met during time away from work. That is, one's resources remain depleted rather than getting replenished. This suggests that it would be important to determine how much an individual's need for recovery varies over a shorter time interval, perhaps from day to day or week to week. Statistically, rather than controlling previous measures of need for recovery, it would be possible to model the change in need for recovery over time using multiple measures of this variable.

Previous research has suggested that need for recovery can be an early diagnostic tool that could be used by organizations. Earlier research which found that need for recovery mediates the stressor-strain relationship gave practical significance to research on the need for recovery construct. If need for recovery is a key intervening variable, then it can be used in early identification of stress-related health problems. The potential for use as an early diagnostic tool makes the measurement of need for recovery an important issue. Before need for recovery can be used for diagnostic purposes, it is necessary to know the best way design the measure for use in organizations in order to obtain the information we want to know. What is the proper time period to ask about an individual's need for recovery? We need to obtain a better understanding of how to measure the construct in order to use need for recovery for early identification of health problems. It

would be useful to consider need for recovery in a study utilizing experience sampling methodology with multiple measurements over a week's time in order to understand daily variation in an individual's experience of need for recovery. This could provide important information about how much intraindividual variation exists in addition to interindividual variation in need for recovery.

Recent research has emerged which utilizes experience sampling methodology or a day-level perspective in order to investigate processes involving stressors, recovery activities, mood, and behavior over shorter time intervals. A study by Sonnentag and Jelden (2009) has taken a day-level perspective toward understanding the experience of job stressors and likelihood of engaging in after-work recovery activities such as sport/exercise over the course of a week. They expected that experiencing job stressors at work would be negatively related to self-regulatory resources and, therefore, individuals would be less likely to engage in sport/exercise (a beneficial activity for recovery) after a stressful day and more likely to engage in low effort activities which are not as beneficial to recovery. Sonnentag and Jelden found that people who experienced more situational constraints and longer work hours reported fewer resources for self-regulation and spent less time on exercise/sport activities. Furthermore, the findings indicated people believed that exercise/sport had a greater recovering effect than low effort activities; however, after a day of experiencing situational constraints, they still spent less time on sport activities. The key point Sonnentag and Jelden wanted to make in this study is that after a stressful day, when recovery is critical, people may be less likely to engage in activities which would help them recover. Trougakos, Beal, Green, and Weiss (2008), using an experience sampling methodology, found that employees who engaged in "respite" or

true “break” activities rather than “chore” activities during work breaks experienced more positive emotion and less negative emotion during these breaks. Plus, these employees demonstrated higher levels of positive affect displays following the work breaks. Studies such as these have been useful for understanding processes that occur throughout a day or over a week’s time.

Additionally, further research is needed related to stress intervention and need for recovery research. The notion that need for recovery could be used for early identification of individuals at risk for developing stress-related health conditions has been put forth in the literature. It has been suggested that an early intervention could be conducted with these individuals who are showing high need for recovery but not yet showing other health problems. More research is needed on the type of intervention that might be most successful. While some stress researchers would argue that elimination of the stressor should be the goal, many others support the development of interventions to help people manage stressors. Commonly used stress management interventions have included cognitive-behavioral interventions (which aim to adapt patterns of negative thinking and coping), relaxation and meditation techniques, exercise programs, and goal-setting or time-management interventions (Richardson & Rothstein, 2008). Recent meta-analytic evidence has demonstrated that these types of stress management interventions can have moderate to large effects (Richardson & Rothstein, 2008). In order to determine the most appropriate type of intervention, it would be important to know which specific stressors contribute to need for recovery. Are these stressors that can be removed from the job? If yes, then a primary prevention strategy is likely ideal. If the stressors cannot be eliminated completely, then recognizing the signs of trouble early on in the process is

recommended rather than waiting for a worker to develop serious stress-related health conditions. If this is the case, then stress management interventions may be quite effective and practical.

Furthermore, because the need for recovery construct has been described as an early indicator of health problems, it would be informative to know how need for recovery correlates with physiological stress measurements, such as cortisol. This type of evidence would suggest convergent validity, but need for recovery would likely have some important advantages as an early indicator. The use of a self-reported need for recovery is a much more convenient and inexpensive tool to assess early indication of strain as compared to physiological measurements which require more training to use and can involve significant costs. If a quick and easy self-reported measure could provide a prediction equivalent to more complicated physiological measurements, then the need for recovery measure provides an alternative which can identify those individuals who are at risk of developing stress-related health problems. However, before need for recovery could be used as this early indicator, we must have a better understanding of its measurement properties and relationships with physiological measurements.

Conclusions

The current study extended the need for recovery literature by considering additional COR theory mechanisms and attempting to build links between need for recovery and other important variables in the stress process, specifically personality traits and social support. It was found that need for recovery across time is not highly related to these variables. It is important for future research to continue exploring relationships between need for recovery and resources, particularly in a longitudinal context with

multi-wave data. Given the pervasiveness of stress-related health problems, the potential for early identification of those individuals at risk is a significant contribution to stress research and intervention.

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Table 1

Means, Standard Deviations, Observed Ranges, Possible Ranges, Alpha Coefficients, and Correlations among All Variables

	Mean	SD	Observed Range	Possible Range	1	2	3	4	5	6	7
1. Conscientiousness	37.34	5.01	25-39	10-50	.81						
2. Emotional Stability	23.88	3.95	15-35	7-35	.40*	.75					
3. Optimism	22.37	3.25	9-30	6-30	.36*	.47*	.81				
4. Self-esteem	39.52	4.47	24-50	10-50	.55*	.45*	.52*	.84			
5. Positive social support from faculty	10.40	4.64	4-20	4-20	.15	.03	.05	.19	.94		
6. Need for recovery Time 1	16.92	7.29	7-35	7-35	-.36*	-.37*	-.31*	-.27*	-.18	.92	
7. Need for recovery Time 2	14.15	6.91	7-34	7-35	-.28*	-.19	-.08	-.05	-.19	.43*	.92

Note. $n = 91$ for all variables and correlations except those involving #7 ($n = 73$). * $p < .05$, two-tailed. Alpha coefficients are shown along the diagonal.

Table 2

Results for Need for Recovery at Time 2 Regressed on Resources while Controlling Need for Recovery at Time 1

Predictors:	Need for Recovery Time 2 ^a	
	β	
	Step 1	Step 2
Need for Recovery Time 1	.43*	.38*
Conscientiousness		-.12
	ΔR^2	.01
Need for Recovery Time 1	.43*	.42*
Emotional Stability		-.02
	ΔR^2	.00
Need for Recovery Time 1	.43*	.45*
Optimism		.07
	ΔR^2	.01
Need for Recovery Time 1	.43*	.48*
Self-esteem		.13
	ΔR^2	.01
Need for Recovery Time 1	.43*	.40*
Positive Social Support from Faculty		-.10
	ΔR^2	.01

$n = 73$. * $p < .01$.

Table 3

Interaction of Dispositional and Contextual Resources on Need for Recovery

		Need for Recovery Time 1 ^a	
		β	
Predictors:		Step 1	Step 2
Conscientiousness		-.34*	-.34*
Positive Social Support		-.13	.13
Conscientiousness*Positive Social Support			-.03
	ΔR^2	.15	.00
<hr/>			
		Need for Recovery Time 2 ^b	
		β	
Predictors:		Step 1	Step 2
Need for Recovery Time 1		.34*	.34*
Conscientiousness		-.14	-.15
Positive Social Support		-.11	-.12
Conscientiousness*Positive Social Support			-.04
	ΔR^2	.21*	.00
<hr/>			
		Need for Recovery Time 1 ^a	
		β	
Predictors:		Step 1	Step 2
Emotional Stability		-.37*	-.43*
Positive Social Support		-.17	-.15
Emotional Stability*Positive Social Support			.15
	ΔR^2	.17*	.02
<hr/>			
		Need for Recovery Time 2 ^b	
		β	
Predictors:		Step 1	Step 2
Need for Recovery Time 1		.38*	.40*
Emotional Stability		-.05	.00
Positive Social Support		-.11	-.14
Emotional Stability *Positive Social Support			-.18
	ΔR^2	.19*	.03

^a $n = 90$. ^b $n = 73$. * $p < .01$.

Table 3 (continued)

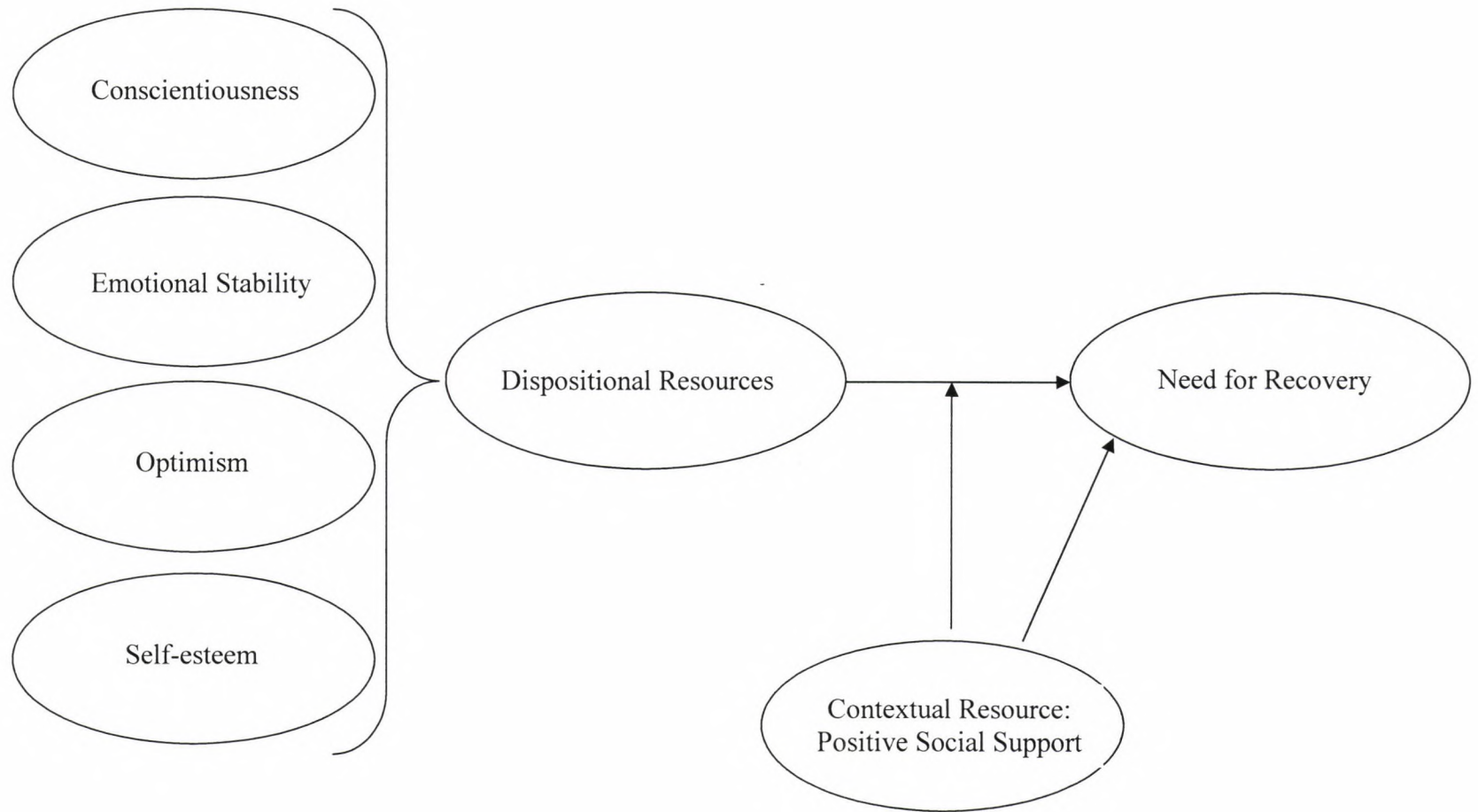
Interaction of Dispositional and Contextual Resources on Need for Recovery

		Need for Recovery Time 1 ^a	
		β	
Predictors:		Step 1	Step 2
Optimism		-.30*	-.28*
Positive Social Support		-.16	-.15
Optimism *Positive Social Support			-.07
	ΔR^2	.12	.00
<hr/>			
		Need for Recovery Time 2 ^b	
		β	
Predictors:		Step 1	Step 2
Need for Recovery Time 1		.42*	.42*
Optimism		.06	.07
Positive Social Support		-.09	-.09
Optimism *Positive Social Support			-.05
	ΔR^2	.20*	.00
<hr/>			
		Need for Recovery Time 1 ^a	
		β	
Predictors:		Step 1	Step 2
Self-esteem		-.26	-.28
Positive Social Support		-.13	-.14
Self-esteem *Positive Social Support			.07
	ΔR^2	.10	.01
<hr/>			
		Need for Recovery Time 2 ^b	
		β	
Predictors:		Step 1	Step 2
Need for Recovery Time 1		.45*	.45*
Self-esteem		.11	.12
Positive Social Support		-.09	-.09
Self-esteem *Positive Social Support			-.02
	ΔR^2	.20*	.00

^a $n = 90$. ^b $n = 73$. * $p < .01$.

Figure 1.

Conceptual Model of Dispositional and Contextual Resources Predicting Need for Recovery



Appendix 1: List of items

5-point Likert Scale: 1 (Not at all accurate) to 5 (Completely accurate)

Need for recovery

1. I have been working so hard today that I am losing my ability to concentrate on what I am doing.
2. I have been so busy with schoolwork today that I am beginning to feel I am losing control over all the work I have to do.
3. If my schoolwork were finished for today, I would still have trouble concentrating on other things.
4. It will be difficult for me to show interest in other people when I finish working on schoolwork today.
5. When I stop my schoolwork for today I will need more than an hour to begin feeling recovered.
6. When I stop my schoolwork for today, I hope other people will leave me alone for a little while.
7. After working on my schoolwork today I will be too tired to start on other activities.

5-point Likert Scale: 1 (Strongly Disagree) to 5 (Strongly Agree)

Conscientiousness

1. I find it difficult to get down to work. (Reverse coded)
2. I am always prepared.
3. I pay attention to details.
4. I waste my time. (Reverse coded)
5. I get chores done right away.
6. I do just enough work to get by. (Reverse coded)
7. I carry out my plans.
8. I don't see things through. (Reverse coded)
9. I make plans and stick to them.
10. I shirk my duties. (Reverse coded)

Emotional Stability

1. I often feel blue. (Reverse coded)
2. I rarely get irritated.
3. I have frequent mood swings. (Reverse coded)

4. I am often down in the dumps. (Reverse coded)
5. I am not easily bothered by things.
6. I seldom feel blue.
7. I panic easily. (Reverse coded)

Optimism

1. In uncertain times, I usually expect the best.
2. If something can go wrong for me, it will. (Reverse coded)
3. I'm always optimistic about my future.
4. I hardly ever expect things to go my way. (Reverse coded)
5. I rarely count on good things happening to me. (Reverse coded)
6. Overall, I expect more good things to happen to me than bad.

Self-esteem

1. I feel that I'm a person of worth, at least on an equal plane with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure. (Reverse coded)
4. I am able to do things well.
5. I feel I do not have much to be proud of. (Reverse coded)
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself. (Reverse coded)
9. I certainly feel useful at times. (Reverse coded)
10. At times I think I am no good at all. (Reverse coded)

5-point Likert Scale: 1 (Never) to 5 (Always)

Positive social support from faculty

1. We talk about the good things about this program.
2. We share interesting ideas for performing well in this program.
3. We talk about how good it is to be part of this program.
4. We talk about the rewarding things of being part of this program.