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Hiking, Haiku, or Happy Hour After Hours:
The Effects of Need Satisfaction and Proactive Personality on the Recovery-Strain
Relationship

By
Paige N. Woodruff

A Thesis Submitted in Partial Fulfillment
Of the Requirements for
Masters of Arts
in
Industrial/Organizational Psychology

Minnesota State University
Mankato, Minnesota

May 2011

Hiking, Haiku, or Happy Hour After Hours:
The Effects of Need Satisfaction and Proactive Personality on the Recovery-Strain
Relationship

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Abstract

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The primary purpose of the current study was to improve understanding of the process of recovery from work stress by examining need satisfaction as a mediator of the recovery experience-strain relationship and by examining proactive personality as a moderator of the recovery experience-strain relationship. Study findings provided support for the mediating role of need satisfaction and the moderating role of proactive personality; however, these relationships appeared to depend on the type of recovery experience. Mediation analysis of survey data from a sample of professionals ($N=123$) revealed that the need for competence and need for autonomy fully mediated the mastery-strain relationship for the gastrointestinal problems strain outcome variable. Both needs partially mediated this relationship for perceived stress while need for autonomy also partially mediated for headaches and respiratory infection variables. Moderation multiple regression analyses ($N=123$) revealed a significant interaction between proactive personality and detachment predicting perceived stress and headaches. It appears that proactive employees should be encouraged to spend their evening hours seeking learning opportunities that provide insightful challenges and not forced to detach. Their passive counterparts should attempt to leave work at work.

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CHAPTER I

INTRODUCTION

On-the-job stress is a serious complaint for U.S. workers. A recent Gallup poll (Saad, 2010) revealed that 32% of U.S. workers are completely dissatisfied with the amount of stress in their job and a 2000 Integra survey reported that 12% of workers had called in sick strictly due to job stress. Furthermore, stress is a greater source of dissatisfaction than pay or any other aspect of their job. One major concern is that workers do not recover from work stress before additional stressors are encountered. If workers are not able to fully recover from work stress outside of working hours they are unable to begin the following work day(s) with a fresh start or at their fullest potential. Yet, evidence suggests that many workers do not take opportunities for recovery. For example, a staggering sixty-six percent (66%) of surveyed U.S. employees did not take all of their available vacation time in 2009, according to a survey by Right Management (Cavalli, 2009). Not doing so may be one contributor to increasing stress and health-related issues among employees and ultimately to decrements in performance and productivity. Douglas J. Matthews, President and Chief Operating Officer at Right Management, insists that the physical and psychological conditions in which people show up for work every day can have a real impact on workplace performance.

Chronic exposure to stressors results in disturbed affective processes and deteriorated performance capabilities (Sonnetag & Geurts, 2009). Stress leads to the

release of stress hormones which create numerous physiological effects (increased heart rate and blood pressure, for example), which are quite useful and effective when dealing with short-term, acute stressors, but which become problematic if they remain elevated for long periods of time. The cumulative effects of stress are known as strain, and over extended periods of time, stress and strain negatively affect individual health by increasing risk of high blood pressure, diabetes, and heart attacks (Sapolsky, 2004). Stress and strain also have negative effects for organizations, ultimately resulting in increased absenteeism, tardiness, intentions to quit, and other negative outcomes that threaten the bottom line (Sulsky & Smith, 2005; NIOSH, 1999). As a result of this diminished productivity and workers' compensation awards, job stress costs the U.S. industry over \$300 billion annually according to the American Institute of Stress. Thus, it is critical that individuals and organizations find methods of ensuring that employees recover from the stressors they are exposed to during their work.

Recently, researchers began to examine what happens when employees remove themselves from work-related stressors (e.g., by taking a vacation, or over the weekend). Etzion (2003) researched the impact of annual vacations on perceived job strain of industrial workers. This study revealed that annual vacations aid in recovery only temporarily; that is, strain is reduced initially but reverts back to the initial level within three weeks of returning from vacation.

Recovery

The body of research on recovery from work stress seeks to explain the *processes* by which individuals recuperate outside of work. Understanding the recovery aspect of the stress process is crucial because one's ability to unwind effectively determines whether employees (and ultimately their organizations) suffer the consequences of

prolonged exposure to job stressors. While exposure to stressors activates the body's sympathetic nervous system, parasympathetic activity has the important aim to reduce the potentially undesirable effects of chronic sympathetic arousal such as strain related illnesses (Sonnentag & Geurts, 2009). The balance between the sympathetic and parasympathetic nervous systems is reflective of recovery at the physiological level. Geurts and Sonnentag (2006) refer to the recovery process as psychophysiological systems that were activated during work returning to and stabilizing at a baseline level during a period wherein no special demands are made on the individual.

A diary study by Sonnentag (2001) wherein teachers completed a diary for five days showed that leisure time activities contribute to an individual's well-being. Findings indicated that both passive and active leisure time activities are helpful at arriving at a high level of well-being. Research suggests that people opt to engage in activities during their leisure time that help alleviate the stress experienced at work (Repetti, 1989). In other words, individuals select activities that seem likely to support the recovery process. There are a variety of activities that may influence experiences of recovery and help to return the individual's previously activated stress response systems back to their pre-stressor levels. Although there are any number of activities that an individual might choose, Sonnentag and Fritz (2007) have created a useful taxonomy of recovery experiences that consists of psychological detachment, mastery activities, and relaxation. Instead of the actual activities themselves, the psychological experiences derived from them are ultimately the relevant piece for recovery.

Recovery Experiences

Psychological detachment, mastery activities, and relaxation all serve the purpose of rebuilding or retaining resources. Psychological detachment is the complete physical

and mental separation from work. Someone who uses psychological detachment as a recovery activity avoids engaging in work after the work day, and in fact, avoids even thinking about work or work-related duties (Sonnentag & Fritz, 2007). If an individual continues to think about work, he or she may activate some of the same stress responses that are activated during actual work, thus inhibiting the potential for full recovery (Sonnentag & Geurts, 2009). Sonnentag and Fritz (2007) suggest that detachment may be the most important or relevant recovery experience because it has the strongest relationship with well-being. Mastery is a recovery experience that provides challenges and learning opportunities. Mastery experiences may impose additional demands but serve the purpose of regaining new resources like skills or competencies when the activity differs from previous demands. Most hobbies are chosen activities that people can “master.” Running a marathon, learning about new religions, and taking pottery-making classes are all examples of activities that could yield mastery experiences. Research reveals that this recovery experience buffers the impact of work stressors on health. According to Fox, Perez, and Tange (2008), when individuals are faced with conflict and workload stressors, those who engage in mastery activities maintain their well-being better than those who do not. Mastery experiences were most predictive in moderating the effects of stressors on health.

Relaxation involves engaging in activities that do not require cognitive or physical demands yet increase positive affect. These activities are things like stretching or listening to music. Relaxation, defined by low sympathetic nervous system activation (Geurts & Sonnentag, 2006), requires only minimal effort.

These three recovery experiences are not mutually exclusive. Individuals may engage in more than one type of recovery experience during a recovery period (e.g., weekend, vacation). Small to moderate positive correlations between the recovery activities suggest that people do not appear to choose one form of recovery exclusively (Sonnentag & Fritz, 2007). Furthermore, specific activities might act as different types of recovery for different people or at different times. For example, a hobby that involves some skill, such as knitting, may serve as a mastery activity or as a relaxation activity depending on the skill level of the knitter or the difficulty of a particular piece. A novice might experience more challenge and more learning while knitting something, indicative of mastery. However, a skilled knitter might be able to work on a simple piece to experience relaxation and a more challenging piece to experience mastery. It may be the case that certain individuals will tend to rely on, and engage in certain recovery experiences more than others. If so, this may be due to the specific needs they are attempting to satisfy (SDT) or resources they are attempting to replace (COR).

Conservation of Resources Theory

The Conservation of Resources (COR) Theory (Hobfoll, 1989) is commonly used to explain people's behavioral reactions to stress-related processes and outcomes. It states that people strive to retain and build valued resources of energy, objects, conditions, and personal characteristics (Hobfoll, 1989). They do this in an effort to create a world that will provide them pleasure and success. Hobfoll(1989) defines stress as a reaction to the environment in which there is a threat of losing resources, actually losing resources, or lacking resource gain after investing them. COR theory is consistent with the seminal work of Lazarus and Folkman (1984)who defined stress as the "relationship between the person and the environment that is appraised by the person as

taxing or exceeding his or her resources and endangering his or her well-being.” Stress and recovery processes can be thought of within the COR theory in which individuals spend resources when they have demands for them (i.e., when they encounter stressors) but must later restore (i.e., recover) such resources in order to maintain a balance. When resources are not restored after being spent then strain occurs. In other words, when resources cannot be restored, individuals do not recover, and the parasympathetic nervous system does not restore the body to homeostasis.

As mentioned previously, COR theory specifies different types of resources. In work settings, an example of *conditional* resources would be a good relationship with one’s supervisor. *Objects* would refer to the quality of supplies available including equipment and current software. *Personal characteristics* are things like one’s self-esteem or confidence in work-related abilities. These characteristics are used, tested and possibly threatened on the job and oftentimes cause reason for individuals to attempt to restore such personal resources after working hours (Demerouti, Bakker, Geurts, & Taris, 2009). *Energy*, the final resource category, is particularly relevant to the current study. It is the actual drive and vigor of a worker as well as time, money, and knowledge (Hobfoll, 1989).

Feelings of recovery have been shown to have a positive effect on employee vigor (Sonnentag & Natter, 2004). Working an entire eight-hour workday typically requires a lot of energy to be used. Employees who maintain high levels of energy and persistence on the job may need to strategize their resource-balancing efforts by engaging in leisure activities after work.

For example, a man working in an automobile manufacturing plant carrying steel car doors from one location to another spends a lot of physical energy resources during the day, so, to recover his energy resource in the evening he may simply lie on the couch reading the newspaper. He needs to protect what physical energy he has left and engage in non-physically demanding cognitive activities to achieve a balance. On the other hand, if he were to get off of work and go home to build a new house, he would be spending more of the same physical resources. When a person is unable to regain *valuable* resources or is unsuccessful in one's strategy to do so, strain occurs. Recovery occurs when the stressor is no longer causing strain in the body and the activated psychophysiological systems have returned to the pre-stressor stage.

Self-Determination Theory

Self-Determination Theory (SDT; Deci & Ryan, 2000) defines basic psychological needs as nutriment that must be procured by a living entity to maintain its growth, integrity, and health. Deci and Ryan (2000) state that satisfaction of these needs is essential for humans to actualize their potentials, flourish, and be protected from ill health and maladaptive functioning.

SDT (Deci & Ryan, 2000) divides these needs into three categories: need for competence, need for autonomy, and need for relatedness. The need for competence represents individuals' desire to feel capable of mastering the environment, to bring about desired outcomes, and to manage confronted challenges (Ryan & Deci, 2000). Specifically, this innate need represents current and general feelings of effectiveness instead of future or specific feelings (Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). Second is the need for autonomy. This need represents the desire to experience ownership of one's own behaviors and act with a sense of volition through making

choices and endorsing requests (Deci & Ryan, 2000). The concept of autonomy in this theory refers more to people doing what they want to do and having the ability to make such self-integrated decisions and not merely a desire to be independent of other people (Deci & Vansteenkiste, 2004). The need for relatedness is also referred to as belongingness. People strive for close and intimate relationships with other people and desire a sense of belonging. Employees who feel part of a team and feel free to express their work-related and personal troubles are more likely to have their need for belongingness fulfilled than employees who feel lonely and lack confidants at work (Van den Broeck et al., 2008). When any of these three innate needs are not satisfied, one's well-being is threatened so people are perhaps motivated to engage in activities that serve the purpose of fulfilling them.

Basic need satisfaction has been positively related to employees' well being (Lynch, Plant, & Ryan, 2005), job satisfaction (Ilardi, Leone, Kasser, & Ryan, 1993), intrinsic and autonomous work motivation (Gagne, 2003), time spent voluntarily at work (Gagne, 2003), and performance evaluations (Baard, Deci, & Ryan, 2004). A study by Van den Broeck et al. (2008) revealed that satisfaction of these needs fully accounted for the relationship between job resources and exhaustion and partially explained the relationship between job demands and exhaustion and between job resources and vigor. This suggested that those surrounded by resourceful job characteristics are more likely to experience need satisfaction, which explains why they are more vigorous in their jobs. This study's findings aligned with the SDT assumption that support of one's basic needs stimulates optimal motivation in terms of quantity and quality and engenders a sense of

psychological energy (Van den Broeck et al., 2008). Furthermore, a lack of need satisfaction appears likely to undermine one's psychological energy.

Thus, in the current study I drew from both COR theory and SDT to explain the relationships between recovery activities, need satisfaction and strain. COR theory states that energy is a resource, and that threatening or losing it elicits stress. Maintaining or restoring lost or threatened resources may occur via recovery activities. SDT states that when a person's basic needs are not satisfied he or she may experience a reduced sense of well-being (i.e., increased strain).

First, consistent with existing research (Sonnentag & Fritz, 2007) and with COR theory, I expected that those who engage in recovery experiences will report less strain.

Hypothesis 1a: Psychological detachment negatively relates to strain as measured by perceived stress and physical symptoms.

Hypothesis 1b: Mastery negatively relates to strain as measured by perceived stress and physical symptoms.

Second, consistent with previous research (Van den Broeck et al., 2008) and with SDT theory, I expected that those who experience greater need satisfaction will report less strain.

Hypothesis 2a: Satisfaction of the need for competence negatively relates to strain as measured by perceived stress and physical symptoms.

Hypothesis 2b: Satisfaction of the need for autonomy negatively relates to strain as measured by perceived stress and physical symptoms.

Integrating COR theory and SDT, I suggested that recovery experiences may be one method of attaining need satisfaction. Existing research supports the notion that both need satisfaction and recovery experiences are negatively related to strain. But according to COR theory, individuals are motivated to protect themselves from threats of resource

loss, so they may be motivated to behave in ways that satisfy the innate needs that have likely been challenged by work stressors. This may be done by engaging in recovery activities that match the unsatisfied need.

Detachment is a recovery experience that may allow individuals to fulfill their need for autonomy. Ongoing job demands require employees to “follow the rules” in order to advance politically and productively at work. This requires them to do what they are told to do. During non-work hours they may need to contribute to their need for autonomy by doing whatever they want to do, including complete detachment from work. Perhaps merely having the power to make their own personal choices during evening hours allows them to experience a feeling of ownership of their behaviors and to act with a sense of volition (Deci & Ryan, 2000). The experience of detaching seems to incorporate autonomy.

Hypothesis 3a: Psychological detachment positively relates to satisfaction of the need for autonomy.

When a person’s competence is challenged at work, they may opt to engage in non-work activities that produce mastery experiences which allow them to rebuild their competence-related resources and satisfy their innate need for competence. Off-the-job mastery experiences then, satisfy the need for competence.

Hypothesis 3b: Mastery experiences positively relates to satisfaction of the need for competence.

Thus, need satisfaction may be the mechanism by which recovery experiences lead to reduced strain. SDT assumes that humans fundamentally strive toward vitality and health and that this tendency will be actualized if the necessary and appropriate nutriment are attainable but will give way to the emergence of undesirable outcomes

when threatened or deprived. Deci and Ryan (2000) specifically state that human needs are what specify the necessary conditions for psychological well-being and that their satisfaction is associated with the most effective functioning. Thus, maximal functioning is reached when individuals engage in recovery experiences that ultimately fulfill the necessary need.

Hypothesis 4a: Satisfaction of the need for autonomy mediates the relationship between psychological detachment and strain.

Hypothesis 4b: Satisfaction of the need for competence mediates the relationship between mastery and strain.

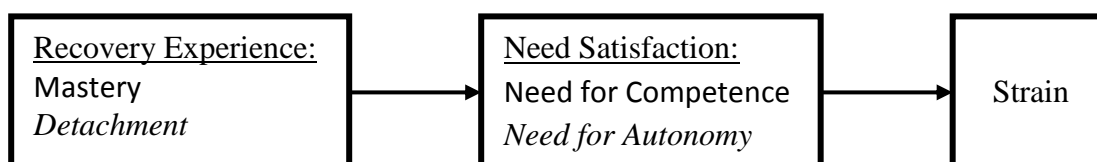


Figure 1. Proposed model of Need Satisfaction mediating the Recovery-Strain relationship.

Recovery Experiences and Individual Differences

Individuals choose to spend their non-working hours in diverse ways. Some people seem to just keep going, they may exercise, leisure read, plan social gatherings (happy hours), think about what went right or wrong at work that day. They may actually continue working or planning ahead for the next workday, or do completely mindless things like watch trashy television shows alone on the couch eating dinner off their laps. Ideally, people choose activities that satisfy one of the needs identified by SDT (competence, autonomy, relatedness) that have been threatened by previous work stressors.

In addition to needs, individual difference variables may play a role in determining which recovery activities individuals choose. There are few studies where the relationship between personality and recovery experiences has been examined. In

addition to being most strongly related to well-being, psychological detachment and mastery are the only recovery experiences related to individual differences (to date). Sonnentag and Fritz (2007) correlated recovery activities with the Big Five personality factors and found that detachment was positively related to emotional stability while mastery was positively related to openness, extraversion, and emotional stability. However, these correlations were all in the low to moderate range. To date, researchers have not examined relationships between recovery experiences and other individual difference variables. An individual difference variable that may have promise in explaining choice of recovery experiences is proactive personality.

Proactive Personality

Proactive personality is a relatively new construct in personality research identified by Bateman and Crant (1993). Everybody knows someone who just seems to get things done...all the time. They are successful in their career, enjoy their job, and are always working toward their next opportunity. Being busy makes them happy instead of stressed so they ensure that they always have projects in the works. People with proactive personalities tend to take initiative because they value learning and mastering new things even beyond actual work requirements (Sonnentag, 2003; Dikkers, Jansen, de Lange, Vinkenburg, & Kooij, 2010). They often take charge of situations and voice their opinions more often than people with passive personalities. They constantly improve their circumstances by seeking opportunities or creating new ones that will help them attain their goals (Dikkers et al., 2010).

In the last two decades, researchers have demonstrated that proactive personality is a valid predictor of organizational outcomes (Gerhardt, Ashenbaum, & Newman, 2009). The concept of proactive personality has been researched mostly in terms of major

personal and organizational outcomes such as job performance and career success but the direct relationship between proactive personality, strain, and other stress-related constructs and has not yet been examined in more depth. Nevertheless, there are some relevant findings that provided guidance to the current hypotheses.

Highly proactive individuals are conceptually thought to have lower stress levels in general than those lower in proactivity. As previously discussed; proactive individuals are likely to continuously work on acquiring and developing new skills (Dikkers et al., 2010). One of the major findings from Fuller and Marler's (2009) meta-analytic review on proactive personality is the strong positive relationship between this personality construct and learning goal orientation. This learning focus may relate to how proactive personalities experience stressors. Lazarus and Folkman (1984) indicate that when we appraise stressors as opportunities or challenges (e.g., for growth, or learning), we experience less strain. It is possible that the learning focus of proactive individuals predisposes them to perceive stressors as opportunities to learn while others perceive those same events as threatening (Elliot & Harackiewicz, 1996).

Proactive personality has also been examined with regard to specific stress-related constructs such as burnout and engagement. Employee burnout is the result of chronic exposure to stressful work environments. Proactive personality relates negatively to emotional exhaustion and depersonalization aspects of burnout (Alarcon, Eschleman, & Bowling, 2009). Depersonalization involves an uncaring response toward co-workers and can be viewed as an attempt to cope with work stress by distancing oneself from others (Maslach, Schaufeli, & Leiter, 2001). Proactive individuals are thought to change their environments so as to relieve stressors. That is, they self-select out of situations

unlikely to provide desired opportunities and select into those which provide control and the ability to change the environment to fit their desires. This elicits a less taxing, less stressful work situation. Proactivity is positively related to the personal accomplishment dimension of the burnout construct (Alarcon et al., 2009). When workers have feelings of reduced personal accomplishment contributing to burnout, they no longer feel capable of meeting work goals or succeeding overall on the job. However, because individuals with highly proactive personalities tend to experience greater success in their careers than those with reactive personalities (Fuller & Marler, 2009), they experience and identify with their personal accomplishments.

The engagement construct is sometimes viewed as the opposite end of the spectrum from burnout and includes a component of vigor (Dikkers et al., 2010). Vigor has specifically been shown to be complementary to the exhaustion aspect of burnout (Van den Broeck et al., 2008). As mentioned previously, mastery experiences have a positive effect on vigor. While proactive personality is negatively related to burnout, it could be hypothesized that people with proactive personalities will engage in more mastery experiences as a means to reduce stress by protecting the energy (vigor) resource.

According to Deci and Ryan (2000), the needs components of Self-Determination Theory motivate individuals' behavior in an attempt to maintain health and well-being. Because proactive employees take initiative and continually improve their current situation, they are perhaps addressing or more readily keeping their innate needs satisfied. Proactive individuals change their environments in order to relieve current stressors (Alarcon et al., 2009). SDT would suggest that proactive individuals are not spending

resources as they are satisfying their innate needs. Individuals who are not taking initiative or acquiring new skills do not have opportunities to fulfill their innate need for competence which should lead to poorer well-being. Thus, SDT would suggest that proactive personalities are likely to experience *less* strain due to their motivation to engage in such behaviors and activities that both help them recover and fulfill their need for competence and autonomy. Satisfied innate needs then lead to less strain because, according to SDT, individuals opt to behave in ways that fulfill their needs for the purpose of maintaining their well-being. Because proactivity is related to higher performance and career success (Fuller & Marler, 2009; Judge & Ilies, 2002), proactive individuals may reach optimal functioning by effectively recovering from stress through satisfied needs.

It is also possible that highly proactive individuals would experience *more* strain than less proactive individuals. Applying COR theory, a proactive individual's natural tendency would be to continuously expend resources as they strive to improve their situation. If they simply use more resources during the work day than others, then they must engage in more recovery experiences (and the correct ones) to regain the lost resources. For example, if a highly proactive individual continuously spends a lot of effort at work solving strategic organizational issues and making decisions, then engaging in Sudoku at home would only require them to spend more cognitive resources. Opting to go on a hike instead requires physical resources and allows them to experience recovery. Their after work time must be utilized accordingly by regaining resources and ensuring that their efforts are targeting the right resources. This increases their risks and decreases their chances of *effectively* experiencing recovery. Thus, they would likely experience

greater strain than more passive individuals due to the increased expenditure of their own resources.

I expected that there was a significant correlation between proactive personality and strain. However, because COR theory and SDT led to conflicting expectations about this relationship, I did not make a specific hypothesis about the direction of the relationship.

Research Question 5a: How does proactive personality relate to strain?

If proactive individuals experience less strain, and research indicates that mastery and detachment are most beneficial in attaining maximal wellbeing (i.e. less strain), then it is likely that proactive people engage in these two recovery experiences. These two recovery experiences could contribute to a superior ability to recover from stress and maintain performance at work. While mastery and detachment experiences are generally beneficial, it seems reasonable that proactivity might affect how recovery experiences relate to strain. However, once again, COR theory and SDT led to conflicting hypotheses. I examined the possible moderating effect of proactive personality on these relationships.

Research Question 5b: Proactive personality moderates the mastery-strain relationship.

Research Question 5c: Proactive personality moderates the detachment-strain relationship.

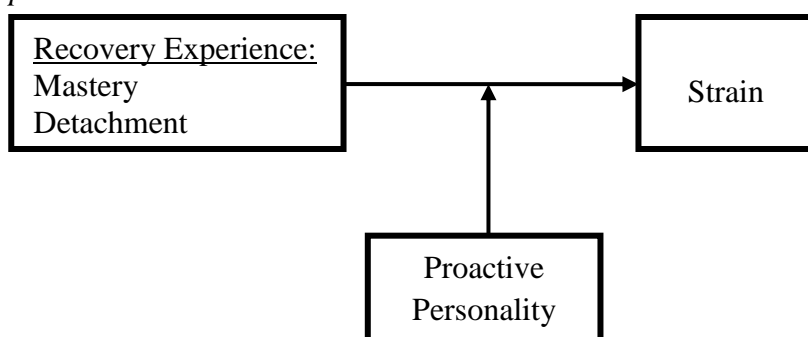


Figure 2. Proposed model of Proactive Personality moderating the Recovery-Strain relationship.

CHAPTER II

METHODS

Participants

A total of 123 employed adults from a variety of occupations (Table 1) were included in this study. Participants (60% female, 40% male) ranged in age from 21 to 67 ($M=41.44$, $SD=11.23$). Participants in the study had worked in their current position for an average of 8.5 years ($SD=8.2$) with a range from less than one year to 30 years. Median job tenure was 5 years. Median organizational tenure was 8 years with an average of 11.5 years, and a range from less than one year to 35 years. Forty-two percent work between 41 and 50 hours per week and 14% work more than 50 hours per week. Complete demographic data on the sample is provided in Table 2.

Data was collected on two samples for the current study. Descriptive statistics and differences on variable means were examined. A total of 103 participants from the first sample remained in the analyses. Job tenure was 8.4 years and 11.3 years for organizational tenure. The participants from this sample were 60% female and 40% male. The average age was 40 years while the average age of the second sample was 49 years.

The subset of participants collected from a secondary source was examined separately as well. Twenty (20) participants comprised this portion of the sample with the same gender percentages (60% female, 40% male). These individuals had worked in their current position for an average of 9 years ($SD=9.2$) with a range from one year to 29 years. Median organizational tenure for this subset was 8 years with an average of 12.6

years and a range from one year to 34 years. These values parallel with those of the original sample.

Procedures

Participants in this study were recruited in two ways. First, undergraduate students at Minnesota State University, Mankato recruited participants. Students identified and nominated individuals who met the study qualifications (over the age of 22 and working full-time). Given the nature of the study, full time students themselves were not qualified to participate. Students signed up for the study through the online Sona-Systems Administration and provided contact information for up to three individuals who met the study qualifications. Nominated participants were then sent individualized links to the survey via email at the addresses provided by the student. This ensured that each person only submitted one completed survey. In the email a letter to participants explained the study and purpose of their involvement.

The second method of data collection served to increase sample size. A universal link to the survey was sent to all employees at a career technology center. Individuals working at this center include a variety of positions and industry backgrounds including various levels of administration and academic or technical instructors from a wide variety of industries. They were informed of the study and volunteered to participate by completing the survey online. The survey was identical to the survey distributed to the original sample.

Measures

The online survey was comprised of several pre-existing validated measures (See Appendices). I analyzed results from the following sections: demographics, proactive

personality, recovery experiences, need satisfaction, perceived stress, and physical symptoms.

Demographics. Participants completed demographic questions assessing age, sex, job title, years in current position and organization, marital status, typical work hours, and education level. Age had a weak correlation with perceived stress ($r = -.21$). Organizational tenure had a weak correlation with gastrointestinal problems ($r = -.19$). No other demographic variables were related to strain outcome variables.

Recovery Experiences. The Recovery Experience Questionnaire (Sonnentag & Fritz, 2007) was used to assess the three distinguishable recovery experiences: psychological detachment, mastery, and relaxation. This measure contained 12 items: four items loading on each of the three recovery experience types. Only the eight items assessing psychological detachment and mastery were used in the present study. Participants were asked to respond to recovery experience questions by referring to the introductory phrase “During my time away from work...” Examples of items include: “I don’t think about work at all” (Psychological Detachment), and “I seek out intellectual challenges” (Mastery). These questions were answered on a 7-point scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Internal consistency in the current study was .85 for the Mastery subscale, and .80 for the Detachment subscale.

Need Satisfaction. The Basic Need Satisfaction at Work Scale (Deci & Ryan, 2000) was used to assess the extent to which participants’ needs were fulfilled. The scale consisted of 21 items on three subscales: Need for Autonomy, Need for Competence, and Need for Relatedness. Only Need for Autonomy and Need for Competence were included in the present study. There were seven items on the Need for Autonomy subscale

(e.g. “I feel like I can make a lot of inputs to deciding how my job gets done.”) and six items on the Need for Competence subscale (e.g. “Most days I feel a sense of accomplishment from working.”). Items were scored on a 7-point scale ranging from 1 (Not at all true) to 7 (Very True). Alphas for the need for competence and need for autonomy subscales were .71 and .77, respectively.

Proactive Personality. The 10-item Proactive Personality Scale (Siebert, Crant, & Kraimer, 1999) was used to assess proactive personality in subjects. The items were answered on a 7-point scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Example items included: “I am constantly on the lookout for ways to improve my life,” and “If I see something I don’t like, I fix it.” Utility of this shortened version of the original 17-item scale is supported by Fuller and Marler’s (2009) meta-analysis on proactive personality. Siebert et al. (1999) found that the reliability of the shortened scale was comparable to the original version (17-item $\alpha = .88$; 10-item $\alpha = .86$). In the current study, the internal consistency was found to be .88.

Strain. Strain outcomes were assessed with two measures. A measure of psychological distress and a measure of physical symptoms were used.

Perceived stress. The short four-item version of the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) was used to measure individuals’ perceived stress. Participants were instructed to answer these items in terms of how often they have felt them in the last month. For example, an item was “In the last month, how often have you felt confident about your ability to handle your personal problems?” Items were answered using a 5-point scale ranging from 1 (Never) to 5 (Very Often). The current study found an internal consistency reliability of .85.

Physical symptoms. The 14-item Physical Health Questionnaire (Schat, Kelloway, & Desmarais, 2005) was used to measure an individual's physical symptoms of stress. Participants were instructed to indicate the frequency (on a 7-point scale from "Not at all" to "All of the time") with which they had experienced certain symptoms in the past month. The measure consists of four subscales or symptom categories including: headaches (e.g. "How often did you get a headache when there was a lot of pressure on you to get things done?"), sleep difficulties (e.g. "How often has your sleep been peaceful and undisturbed?"), gastrointestinal difficulties (e.g. "How often have you suffered from an upset stomach?") and respiratory infections (e.g. "When you have a bad cold or flu, how often does it last longer than it should?"). These physical symptom categories were chosen as they have been shown to be related to stress in previous research (Schat et al., 2005). The current study found Cronbach's alphas of .93 for the headaches subscale, .84 for the gastrointestinal problems subscale, .84 for the respiratory infections subscale, and .76 for the sleep subscale.

CHAPTER III

RESULTS

Preliminary Analyses

Of the original 132 responses, a small number (n=9) were excluded from analyses. Participants who worked less than 20 hours per week were excluded (n=8). Responses with unacceptable level of incomplete data were also excluded (n=1). This cutoff was set for any subscale with more than one item missing. Twenty (20) of the collected responses were from the second sample method. The two samples were tested for meaningful differences through analysis of variance. They were not statistically different on any strain outcome variable or detachment. The means for mastery, proactive personality, need for competence, and need for autonomy variables in the second sample were approximately .5 greater than the first sample causing an inflation of .1 to the whole sample means. In order to ensure that this minimal influence did not influence results, analyses were conducted by controlling for sample.

Descriptive statistics were computed and reliability was examined for each item. No issues presented; therefore, all items remained in the following analyses. Means, standard deviations, ranges, and Cronbach's alphas are presented in Table 3. Correlations between all variables are presented in Table 4.

Test of Hypotheses

Recovery Experience and Strain

Hypotheses 1, 2, and 3 were tested with simple bivariate correlations. Hypothesis 1a was partially supported. Detachment was negatively related to perceived stress and the respiratory infections subscale of the PHQ. The more individuals experience detachment

from work, the less they reported perceived stress ($r = -.33, p < .01$) and the fewer issues they report with respiratory infections ($r = -.37, p < .01$). Detachment was not related to the other subscales of the PHQ (headaches, sleep disturbances, or gastrointestinal problems).

Hypothesis 1b was also partially supported. Mastery was negatively related to perceived stress and all physical symptoms subscales except sleep difficulties. The more people engaged in mastery experiences, the less stress they perceived ($r = .37, p < .01$). Those who experienced mastery also reported fewer physical symptoms including headaches ($r = -.37, p < .01$), respiratory infections ($r = -.27, p < .01$), and gastrointestinal problems ($r = -.20, p < .05$).

Need Satisfaction and Strain

Hypothesis 2a was partially supported. Satisfaction of the need for competence was negatively to perceived stress, gastrointestinal problems, sleep difficulties, and respiratory infections. The more individuals' need for competence was satisfied, the less they reported perceived stress ($r = -.254, p < .01$). Those with a satisfied need for competence also reported fewer physical symptoms of gastrointestinal problems ($r = -.23, p < .01$), sleep difficulties ($r = -.22, p < .05$), and respiratory infections ($r = -.20, p < .05$). Need for competence was not significantly related to headaches.

Hypothesis 2b was fully supported. Satisfaction of the need for autonomy was negatively related to perceived stress, headaches, gastrointestinal problems, sleep difficulties, and respiratory infections. The more individuals reported a satisfied need for autonomy, the less they reported perceived stress ($r = -.386, p < .01$). Those with a satisfied need for autonomy also reported fewer strain-related physical symptoms of

headaches ($r = -.298, p < .01$), gastrointestinal problems ($r = -.304, p < .01$), sleep difficulties ($r = -.22, p < .05$), and respiratory infections ($r = -.294, p < .01$).

Recovery Experience and Need Satisfaction

Hypothesis 3a was not supported. Detachment was not significantly related to need for autonomy. Hypothesis 3b was supported. Mastery was positively related to need for competence ($r = .227, p < .05$). The more individuals engage in mastery experiences, the more they reported satisfaction of the need for competence.

Mediation Analyses

Mediation hypotheses were tested using the procedures outlined by Baron and Kenny (1986) that consists of a series of three regression analyses. First, the mediator variable (competence need satisfaction or autonomy need satisfaction) was regressed on the independent variable (either psychological detachment or mastery experiences). If the independent variable was not a significant predictor, no further analyses were conducted. If the independent variable was a significant predictor, a second regression was conducted where the dependent (strain) variable was regressed on the independent variable (psychological detachment or mastery experiences). Again, if the independent variable was not a significant predictor, no further analyses were conducted. Finally, a third regression was conducted where the dependent (strain) variable was regressed on both the mediator (competence need satisfaction or autonomy need satisfaction) and the independent variable (psychological detachment or mastery experiences). Full mediation occurs when the mediator accounts for the relationship between the predictor and criterion, as shown in Figure 3. Partial mediation occurs when the mediator accounts for

some of the relationship between the predictor and criterion, but the predictor still has some independent influence on the criterion as well.

I modified the Baron and Kenny procedure slightly to account for the split sample used in this study. For each regression discussed above, I conducted a hierarchical regression where I entered a dummy coded variable for the sample on the first step, and then entered the mediator and/or independent variables on the next step.

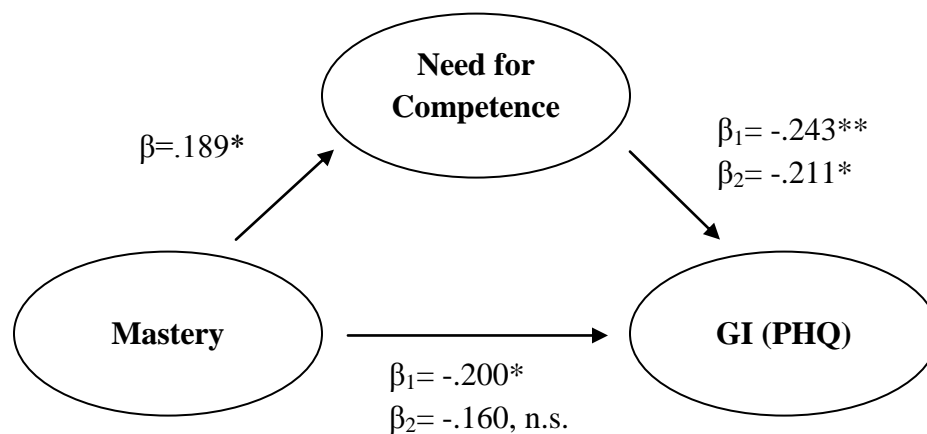
Hypothesis 4a was not supported. Because detachment was not related to need for autonomy in hypothesis 3a, no further mediation analysis was necessary.

Hypothesis 4b was partially supported. Satisfaction of the need for competence fully mediated the relationship between mastery and gastrointestinal problems and partially mediated the relationship between mastery and perceived stress. Competence need satisfaction did not mediate the relationship between mastery and the other strain variables (headaches, sleep problems, and respiratory infections).

With regard to gastrointestinal (GI) problems, a simple linear regression determined that mastery significantly predicted satisfaction of the need for competence (see Table 5 and Figure 3). Second, when the GI problems variable was regressed onto mastery, mastery significantly predicted gastrointestinal problems. Third, when GI problems were regressed onto need for competence and mastery, the relationship between mastery and GI problems became non-significant.

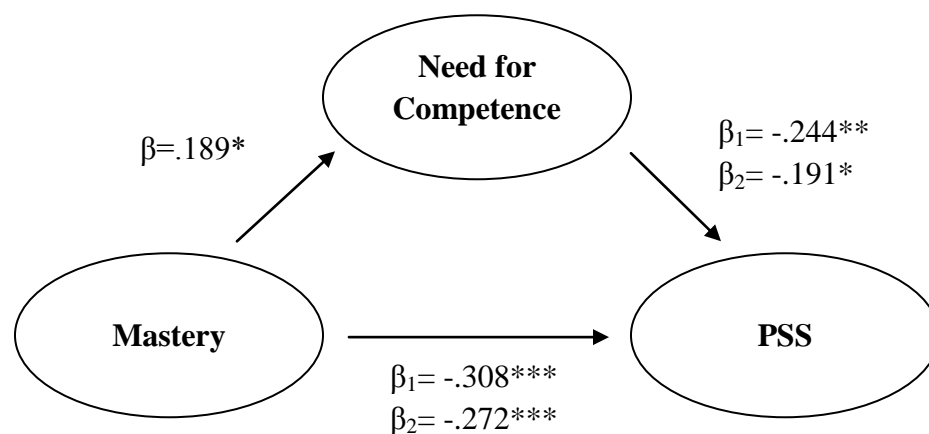
Results involving perceived stress (PSS) were consistent with partial mediation. When the PSS variable was regressed onto mastery, mastery significantly predicted perceived stress. In the final step when the PSS variable was regressed onto need for competence and mastery, the beta for mastery decreased in this combined model (Figure

4). While the relationship is still significant, it is weaker when the need for competence is accounted for. Coefficients can be found for each step of the mediation analysis for perceived stress in Table 6.



Note. * $p < .05$. ** $p < .01$.

Figure 3. Need for Competence as a Full Mediator between Mastery and Strain as measured by GI Problems (controlling for Sample).



Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 4. Need for Competence as a Partial Mediator between Mastery and Strain as measured by Perceived Stress (controlling for Sample).

Moderation Analyses

Research question 5a examined the relationship between proactive personality and strain. Although proactive personality was negatively related to one strain measure (the headaches subscale of the PHQ; $r = -.227, p < .05$; Table 4), there is little evidence to suggest proactive personality has a relationship with strain. Though proactivity and strain were not directly related, further analyses were conducted to examine the potential moderating effects of proactive personality for research questions 5b and 5c.

Research questions 5b and 5c were tested using hierarchical moderated regression as outlined by Baron and Kenny (1986). For all analyses, the main effects of recovery experiences (mastery or detachment) and the moderator (proactive personality) were entered on the first step. On the second step, the multiplicative interaction term (recovery experience x proactive personality) was entered into the regression equation as the third variable for each moderation analysis. The test of the incremental variance accounted for by the multiplicative interaction term is the critical statistical test for the stated hypotheses. Analyses were repeated with either perceived stress or physical symptoms as the dependent variables. All predictors were centered prior to conducting the analyses.

Proactive personality did not moderate the relationship between mastery and any strain outcome variable. Table 7 displays a summary of all of these hierarchical multiple regressions.

Proactive personality moderated the relationship between detachment and strain. Two of the five interactions were significant. Table 8 presents results of these moderated regression analyses. When perceived stress served as the criterion, the interaction between detachment and proactive personality was significant ($\beta = .213; p = .01$). This interaction

accounted for 4.4% of the variance in perceived stress. To examine the form of the interaction, perceived stress was regressed on detachment at high, medium, and low levels of proactive personality. These results are depicted in Figure 5, at low levels of proactivity the negative relationship between detachment and perceived stress is stronger than at high levels of proactivity. In other words, among individuals low in proactivity, detachment is related to lower perceived stress, but among individuals high in proactivity, detachment is unrelated to perceived stress.

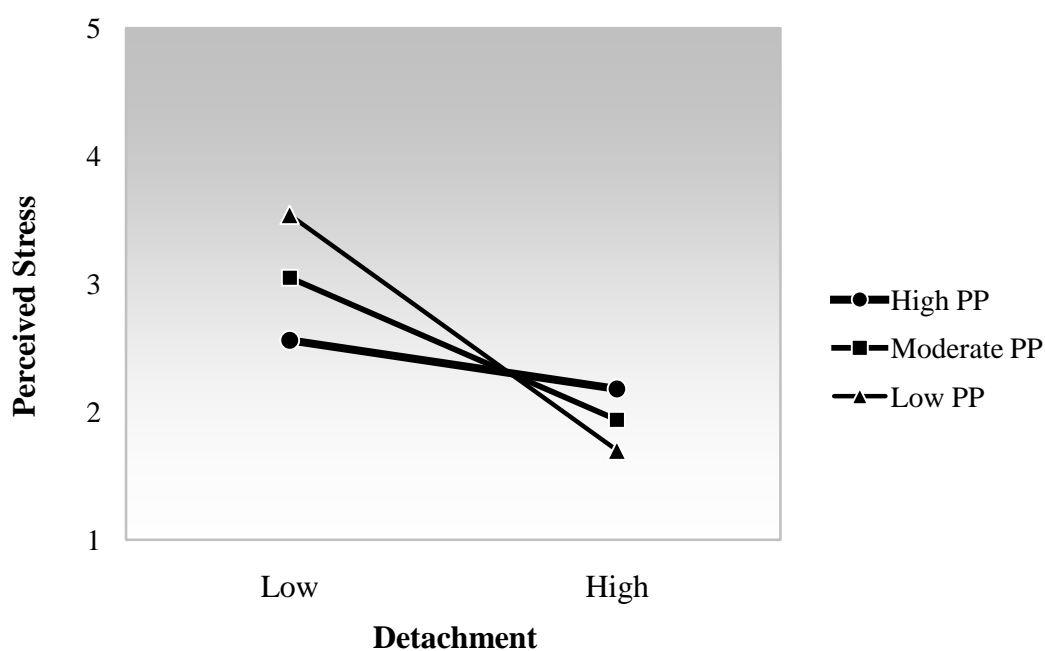


Figure 5. Proactive Personality Moderating Detachment and Strain as measured by Perceived Stress (controlling for Sample).

When the Headaches subscale of the PHQ served as the criterion, the interaction between detachment and proactive personality ($\beta=.192$, $p < .05$) was also significant. This interaction accounted for 3.6% of the variance in headaches. This relationship is similar in form to the results involving perceived stress. As plotted in Figure 6, at low levels of

proactivity the relationship between detachment and headaches is strongest and there is no relationship between detachment and headaches among the highly proactive.

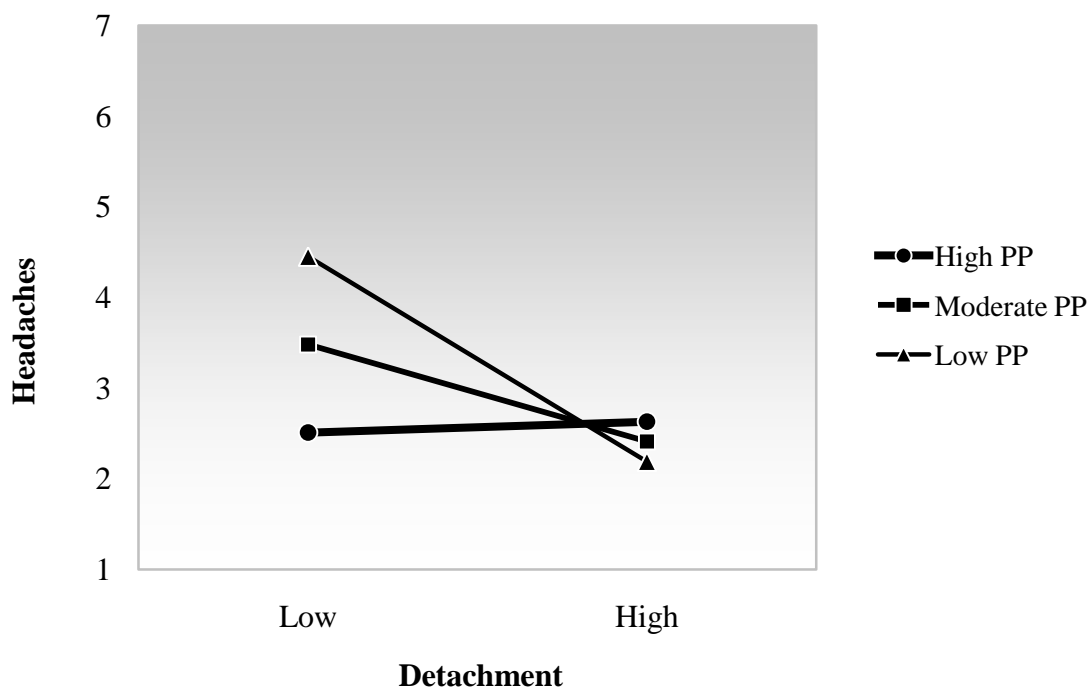


Figure 6. Proactive Personality Moderating Detachment and Strain as measured by Headaches (controlling for Sample).

Additional Analyses

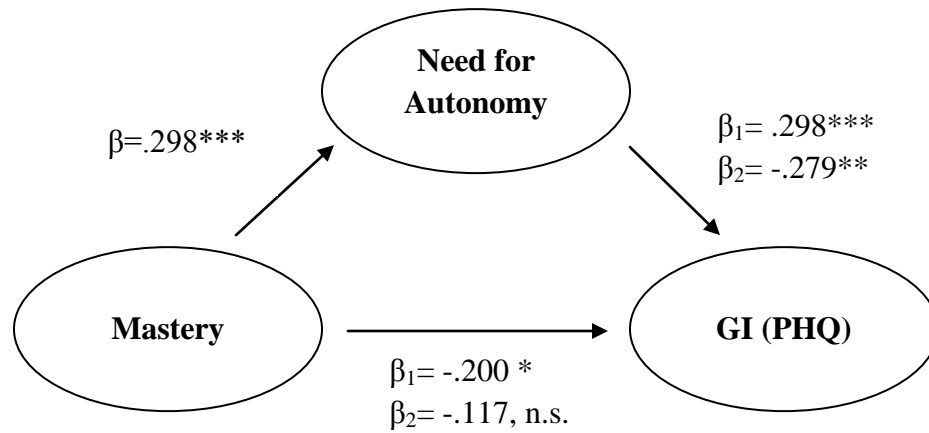
In addition to the proposed hypotheses, the mediating effects of autonomy on other recovery experiences were explored. Although the need for autonomy was specifically hypothesized to mediate the relationship between detachment and strain, they were not related. The mastery-strain relationship was mediated by the originally hypothesized need for competence so exploratory mediation analysis was conducted to examine if satisfaction of other needs (i.e. autonomy) also mediated this relationship.

With regards to GI problems, a simple linear regression determined that mastery significantly predicted satisfaction of the need for autonomy (see Table 9 and Figure 7).

Second, when the GI problems variable was regressed onto mastery, mastery significantly predicted gastrointestinal problems. Third, when GI problems were regressed onto need for autonomy and mastery, the relationship between mastery and GI problems became non-significant. Need for autonomy fully mediated the relationship between mastery and the gastrointestinal problems subscale of the PHQ.

Results involving perceived stress, headaches, and respiratory infections were consistent with partial mediation. Mastery significantly predicted each of these strain outcome variables. When PSS was regressed onto need for autonomy and mastery, the relationship was still significant but the beta for mastery decreased when the need for autonomy variable was included. Coefficients can be found for each step of the mediation analysis for perceived stress in Table 10. When the headaches variable was regressed onto need for autonomy and mastery, the relationship between mastery and headaches became weaker than the first step in the mediation analysis. Coefficients can be found for each step of the mediation analysis for headaches in Table 11. When the RI variable was regressed onto need for autonomy and mastery, the beta for mastery decreased indicating that need for autonomy accounted for some of the variance. Coefficients can be found for each step of the mediation analysis for respiratory infections in Table 12.

Need for autonomy mediated the mastery-strain relationship for four of the five strain outcomes: Gastrointestinal problems, Perceived Stress, Headaches, and Respiratory Infections. Mastery did not significantly predict sleep disturbances so no further mediation analysis was necessary.



Note. * $p < .05$ ** $p < .01$ *** $p < .001$

Figure 7. Need for Autonomy as a Full Mediator between Mastery and Strain as measured by Gastrointestinal Problems (controlling for Sample).

Table 1. Areas of Employment

	<i>N</i>	<i>%</i>
Management/Supervisor	22	18.18
Education, Training	20	16.53
CEO/VP/Owner	13	10.74
Office and Administrative Support	10	8.26
Coordinator/Director	9	7.44
Life, Physical, Social Sciences/ Research	7	5.79
Business and Financial Operations	5	4.13
Healthcare	5	4.13
Other/ Not Disclosed	5	4.13
Legal	4	3.31
Food Prep/Service	4	3.31
Mechanical/Technician	4	3.31
Sales	3	2.48
Architecture, Engineering, Laborer	3	2.48
Service Representative	3	2.48
Community Services	2	1.65
Computer Related	1	0.83
Arts, Design, Entertainment	1	0.83
Total	123	100%

Table 2. Sample Demographic Characteristics

Variable	<i>M</i>	<i>SD</i>	<i>N</i>	%
Age	41.4	11.2		
Job Tenure	8.5	8.2		
Organizational Tenure	11.5	9.9		
Gender				
Female			74	60.2
Male			49	39.8
Education Level				
Less than High School diploma			0	0.0
High School diploma			10	8.2
Some college			36	29.5
College degree (AA, BS, or BA)			62	50.8
Graduate degree			14	11.5
Prefer not to say			0	0.0
Pay				
Hourly			45	36.9
Salary			77	63.1
Hours worked per week				
21-30			6	4.9
31-40			48	39.0
41-50			52	42.3
51-60			11	8.9
More than 60			6	4.9

Table 3. Means, Standard Deviations, Alphas for All Study Variables

	<i>M</i>	<i>SD</i>	Alpha (α)	Possible Range	Actual Range
Proactive Personality	5.10	0.90	0.88	1-7	2.5- 6.6
Recovery Experience					
Mastery	2.49	1.16	0.85	1-7	1.8- 7.0
Detachment	3.92	1.38	0.80	1-7	1.0- 7.0
Need Satisfaction					
Competence	5.52	0.95	0.71	1-7	3.3- 7.0
Autonomy	4.85	1.05	0.77	1-7	1.3- 7.0
Strain					
Perceived Stress	2.49	0.80	0.85	1-5	1.0- 4.8
Physical Health					
Headaches	2.94	1.49	0.93	1-7	1.0- 6.7
Gastrointestinal Problems	2.38	1.19	0.84	1-7	1.0- 6.5
Sleep Problems	3.47	1.27	0.76	1-7	1.0- 6.8
Respiratory Infections	2.37	1.29	0.84	1-7	1.0- 6.3

Table 4. Zero-order Correlations Between All Study Variables

	Proactive Personality	Mastery	Detach	Competence	Autonomy	PSS	Headaches	Gastrointestinal Problems	Sleep Problems
Mastery	.441**								
Detachment	-.012	.247**							
Competence	.386**	.227*	-.002						
Autonomy	.348**	.326**	.117	.643**					
PSS	-.125	-.316**	-.330**	-.254**	-.386**				
Headaches	-.227*	-.368**	-.161	-.149	-.298**	.460**			
Gastrointestinal Problems	-.160	-.197*	-.156	-.232**	-.304**	.394**	.435**		
Sleep Problems	.006	-.146	-.074	-.216*	-.216*	.336**	.336**	.576**	
Respiratory Infections	-.030	-.265**	-.365**	-.200*	-.294**	.402**	.442**	.432**	.300**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

PSS= Perceived Stress Scale

Table 5. Regression Coefficients for a Test of Mediation of the Relationship between Mastery and Gastrointestinal Problems (PHQ) by Need for Competence

<i>Variables</i>	<i>Beta</i>	<i>R</i>	<i>R²</i>	<i>R² Adj.</i>	<i>p</i>
Step 1: DV=Need for Competence					
Sample (control)	-.210				.019
Mastery	.189	.307	.094	.079	.035
Step 2: DV= Gastrointestinal Problems					
Sample (control)	-.020				.828
Mastery	-.200	.198	.039	.023	.030
Step 3: DV=Gastrointestinal Problems					
Sample (control)	-.064				.484
Mastery	-.160				.081
Need for Competence	-.211				.024
Overall Model		.282	.080	.056	.007

Table 6. Regression Coefficients for a Test of Mediation of the Relationship between Mastery and Perceived Stress by Need for Competence

<i>Variables</i>	<i>Beta</i>	<i>R</i>	<i>R²</i>	<i>R² Adj.</i>	<i>p</i>
Step 1: DV=Need for Competence					
Sample (control)	-.210				.019
Mastery	.189	.307	.094	.079	.035
Step 2: DV= PSS					
Sample (control)	.045				.611
Mastery	-.308	.319	.102	.087	.001
Step 3: DV=PSS					
Sample (control)	.005				.958
Mastery	-.272				.003
Need for Competence	-.191				.035
Overall Model		.367	.135	.113	.001

Table 7. Summary of Hierarchical Multiple Regression Analyses Testing Moderating Effect of Proactive Personality (IV=Mastery)

Variable	Perceived Stress				Headaches (PHQ)			
	ΔR^2	<i>B</i>	<i>SE B</i>	β	ΔR^2	<i>B</i>	<i>SE B</i>	β
Step 1	.092**				.135***			
Sample-control		.107	.19	.050		-.012	.35	-.003
PP		.025	.09	.028		-.132	.16	-.080
Mastery		-.220	.07	-.319***		-.428	.12	-.333***
Step 2	.000				.000			
Sample-control		.108	.19	.050		-.010	.36	-.002
PP		.027	.09	.030		-.125	.16	-.076
Mastery		-.219	.067	-.319***		-.426	.122	-.332***
PP x Mastery		.006	.06	.009		.021	.11	.018
Variable	Gastrointestinal Problems (PHQ)				Respiratory Infections (PHQ)			
	ΔR^2	<i>B</i>	<i>SE B</i>	β	ΔR^2	<i>B</i>	<i>SE B</i>	β
Step 1	.046				.086*			
Sample-control		-.120	.30	-.037		-.388	.32	-.111
PP		-.130	.13	-.099		.121	.14	.084
Mastery		-.164	.10	-.160		-.359	.11	-.322***
Step 2	.000				.006			
Sample-control		-.120	.30	-.037		-.396	.32	-.114
PP		-.131	.14	-.099		.094	.15	.066
Mastery		-.165	.10	-.160		-.364	.11	-.327***
PP x Mastery		-.002	.09	-.003		-.085	.09	-.082
Variable	Sleep Problems (PHQ)							
	ΔR^2	<i>B</i>	<i>SE B</i>	β	ΔR^2	<i>B</i>	<i>SE B</i>	β
Step 1	.028							
Sample-control		-.013	.32	-.004				
PP		.122	.14	.087				
Mastery		-.203	.11	-.185				
Step 2	.000							
Sample-control		-.012	.32	-.003				
PP		.127	.15	.090				
Mastery		-.202	.11	-.185				
PP x Mastery		.015	.10	.015				

Note. $N=123$. * $p<.05$. ** $p<.01$ *** $p<.001$.

Table 8. Summary of Hierarchical Multiple Regression Analyses Testing Moderating Effect of Proactive Personality (IV=Detachment)

Variable	Perceived Stress				Headaches (PHQ)			
	ΔR^2	B	SE B	β	ΔR^2	B	SE B	β
Step 1	.126***				.074**			
Sample-control		.234	.19	.109		.157	.37	.039
PP		-.090	.08	-.102		-.360	.15	-.219**
Detachment		-.198	.05	-.342***		-.181	.10	-.168
Step 2	.044**				.036*			
Sample-control		.176	.19	.082		.059	.363	.015
PP		-.119	.08	-.135		-.409	.15	-.249**
Detachment		-.206	.05	-.356***		-.195	.09	-.181*
PP x Detach		.141	.06	.213**		.237	.11	.192*
Variable	Gastrointestinal Problems (PHQ)				Respiratory Infections (PHQ)			
	ΔR^2	B	SE B	β	ΔR^2	B	SE B	β
Step 1	.050*				.131***			
Sample-control		-.030	.30	-.009		-.176	.31	-.050
PP		-.216	.12	-.164		-.067	.13	-.047
Detachment		-.136	.08	-.157		-.338	.08	-.360***
Step 2	.003				.010			
Sample-control		-.051	.30	-.016		-.219	.31	-.063
PP		-.227	.12	-.172		-.089	.13	-.062
Detachment		-.139	.08	-.160		-.344	.08	-.367***
PP x Detach		.053	.09	.053		.107	.09	.100
Variable	Sleep Problems (PHQ)							
	ΔR^2	B	SE B	β				
Step 1	.006							
Sample-control		.061	.324	.018				
PP		.014	.03	.010				
Detachment		-.070	.09	-.076				
Step 2	.025							
Sample-control		-.009	.324	-.003				
PP		-.021	.13	-.015				
Detachment		-.080	.08	-.086				
PP x Detach		-.168	.10	.160				

Note. N=123. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9. Regression Coefficients for a Test of Mediation of the Relationship between Mastery and Gastrointestinal Problems (PHQ) by Need for Autonomy

<i>Variables</i>	<i>Beta</i>	<i>R</i>	<i>R²</i>	<i>R² Adj.</i>	<i>p</i>
Step 1: DV=Need for Autonomy					
Sample (control)	-.156				.073
Mastery	.298	.361	.130	.115	.001
Step 2: DV= GI					
Sample (control)	-.020				.828
Mastery	-.200	.198	.039	.023	.030
Step 3: DV=GI					
Sample (control)	-.063				.478
Mastery	-.117				.207
Need for Autonomy	-.279				.003
Overall Model		.327	.107	.084	.004

Table 10. Regression Coefficients for a Test of Mediation of the Relationship between Mastery and Perceived Stress by Need for Autonomy

<i>Variables</i>	<i>Beta</i>	<i>R</i>	<i>R²</i>	<i>R² Adj.</i>	<i>p</i>
Step 1: DV=Need for Autonomy					
Sample (control)	-.156				.073
Mastery	.298	.361	.130	.115	.001
Step 2: DV= PSS					
Sample (control)	.045				.611
Mastery	-.308	.319	.102	.087	.001
Step 3: DV=PSS					
Sample (control)	-.005				.955
Mastery	-.213				.017
Need for Autonomy	-.317				<.001
Overall Model		.435	.189	.169	<.001

Table 11. Regression Coefficients for a Test of Mediation of the Relationship between Mastery and Headaches (PHQ) by Need for Autonomy

<i>Variables</i>	<i>Beta</i>	<i>R</i>	<i>R²</i>	<i>R² Adj.</i>	<i>p</i>
Step 1: DV=Need for Autonomy					
Sample (control)	-.156				.073
Mastery	.298	.361	.130	.115	.001
Step 2: DV= Headaches					
Sample (control)	.011				.896
Mastery	-.366	.369	.136	.121	<.001
Step 3: DV=Headaches					
Sample (control)	-.020				.813
Mastery	-.306				.001
Need for Autonomy	-.202				.026
Overall Model		.414	.171	.151	<.001

Table 12. Regression Coefficients for a Test of Mediation of the Relationship between Mastery and Respiratory Infections (PHQ) by Need for Autonomy

<i>Variables</i>	<i>Beta</i>	<i>R</i>	<i>R²</i>	<i>R² Adj.</i>	<i>p</i>
Step 1: DV=Need for Autonomy					
Sample (control)	-.156				.073
Mastery	.298	.361	.130	.115	.001
Step 2: DV= Respiratory Infections					
Sample (control)	-.126				.157
Mastery	-.288	.293	.086	.070	.002
Step 3: DV=Respiratory Infections					
Sample (control)	-.167				.058
Mastery	-.210				.022
Need for Autonomy	-.261				.005
Overall Model		.381	.145	.123	<.001

CHAPTER IV

DISCUSSION

This study examined the relationships between recovery experiences, need satisfaction, proactive personality, and strain. The primary purpose of the current study was to improve understanding of the process of recovery from work stress by examining need satisfaction as a mediator of the recovery experience-strain relationship and by examining proactive personality as a moderator of the recovery experience-strain relationship. Although study findings provided some support for the mediating role of need satisfaction and the moderating role of proactive personality, these relationships appeared to depend on the type of recovery experience. Previous research suggests that mastery and detachment are the most useful recovery strategies (Fox, Perez, & Tange, 2008; Sonnentag & Fritz, 2007). This study reveals that they are useful in different ways.

Need Satisfaction as a Mediator

Similar to Greguras and Diefendorff's findings (2010) that need satisfaction was directly related to employee outcomes in the form of life satisfaction and higher performance, the current study also suggests that need satisfaction is directly related to reduced employee strain outcomes. I expected that psychological detachment would reduce strain, at least in part, by satisfying an individual's need for autonomy. In other words, I expected that leaving work behind would allow a person to exercise greater discretion over how they spent their time, thus reducing strain. Although detachment and satisfaction of the need for autonomy were both related to reduced strain, detachment was

unrelated to level of autonomy need satisfaction. Autonomy in this case refers to experiencing ownership of one's own actions, decisions, or behaviors instead of merely being independent of others. It may be that when individuals detach they do not recognize their power in choosing to do so. For example, when someone decides to spend their evening watching trashy television shows they may not identify with this decision itself while they may be aware that they are detached from work. While those who detach from work have decreased feelings of perceived stress and fewer respiratory infections, the detachment experience is not influenced by either the need for autonomy or the need for competence.

Further, I expected that mastery would reduce strain, at least in part, by satisfying an individual's need for competence. In other words, I expected that engaging in hobbies and other experiences that enable one to demonstrate success, would allow a person to feel greater satisfaction of the innate need for competence, thus reducing strain. In fact, mastery did reduce strain by satisfying individuals' need for competence. Engaging in mastery experiences reduced gastrointestinal symptoms due to increased satisfaction of competence needs. Mastery experiences reduced feelings of perceived stress, in part, due to increased satisfaction of competence needs. This adds to our understanding of the purpose(s) of mastery experiences and why they emerge as an important recovery strategy.

Mastery can actually help to fulfill both the autonomy and competence needs. Although I did not hypothesize this, additional exploratory analyses revealed that satisfying the need for autonomy also mediates the mastery experience-strain relationship. By increasing satisfaction of autonomy needs, mastery experiences reduced

gastrointestinal problems. Engaging in mastery experiences can reduce headaches, respiratory infections, and feelings of perceived stress, in part, due to increased satisfaction of autonomy needs. Mastery experiences are oftentimes challenging activities that individuals voluntarily choose as hobbies. They are more demanding and require more effort than other recovery experience activities. Thus, having the power to decide which learning opportunities to invest in provides autonomy. If an individual chooses to train for a marathon, the nature of the mastery experience contributes to their sense of ownership. They continue to feel empowered to make decisions during the training process. Eventually, they prove something to themselves after they run the race (need for competence). In a sense, the need for autonomy can sometimes be satisfied while attempting to fulfill the need for competence. The two needs are highly related.

Proactive Personality as a Moderator

Another objective was to examine not only the direct relationship between proactive personality and strain, but also the moderating effects of proactivity on the recovery-strain relationship. Previous research has failed to find that personality constructs play a part in individuals' ability to experience recovery (Sonnentag & Fritz, 2007). Sonnentag and Fritz (2007) found weak relationships between the Big Five personality factors and recovery experiences but few other personality dimensions have been examined. This study contributes new and unique findings on personality and recovery. Proactive personality was positively related to mastery but was not directly related to detachment. Highly proactive individuals tend to engage in mastery experiences more than other individuals.

Although no previous research had included proactive personality as a moderator of recovery-strain relationships, Cunningham and De La Rosa (2008)'s examination of proactive personality as a moderator of the work/family conflict-strain relationship is relevant. Work-family conflict and recovery both reflect experiences outside of work that may impact work roles and general well-being. Cunningham and De La Rosa (2008) however, did not find any support for the moderating role of proactive personality. Nevertheless, I expected that highly proactive individuals may have more effective recovery strategies than their more passive counterparts. While proactivity was positively related to mastery experiences, proactive personality did not moderate the mastery-strain relationship.

In the present study, however, proactive personality did moderate the detachment-strain relationship. That is, detaching is not related to the level of strain that proactive individuals experience; however, it is related to the level of strain experienced by those lower in proactivity. Passive individuals who experience detachment reported fewer headaches and less perceived stress. It is common for us to say we are "just not even going to think about work tonight." This tends to be understood as how we are *supposed* to act even if this is not in our nature. It seems that it is not always purposeful to advise workers to detach from work. Employees who behave proactively are likely those who seem to always be working, and in turn, those who are always told to "just stop working!" Highly proactive employees will not actually benefit from detaching; this is an effective strategy for those lower in proactivity. When more passive individuals think about work or use non-working hours to continue work duties, they experience more headaches and perceive greater stress than if they would just leave it behind. While

detachment has been regarded as the “most relevant recovery experience” (Sonnentag & Fritz, 2007), it could be the case for passive individuals but not proactive individuals.

Control may play a significant part in explaining these relationships as it is a defining characteristic or tendency for proactive personality. Proactive individuals are constantly trying to control their environments actively, instead of letting their environments control them (Cunningham & De La Rosa, 2008). Stress literature emphasizes that it is stressful to attempt controlling or being proactive about things (stressors) that cannot be controlled (Cunningham & De Le Rosa, 2008). Perhaps these situations are when detaching may be more useful. Passive individuals may be more willing to detach and tend to do so more frequently, whereas detaching may be the better option for proactive employees when the stressor cannot be controlled. Cunningham and De La Rosa (2008) found that when stressors develop from more controllable origins, highly proactive individuals may be protected from experiencing strain. Including control-related variables may be necessary in future studies and is discussed in the following section.

Limitations and Future Directions

Though this study contributes to the stress recovery and proactive personality research, it is important to note some limitations. The first limitation is one that is typical in cross-sectional research. Utilizing this technique inhibits making causal inferences. While the current analyses provide evidence that the relationships exist, they do not allow directional conclusions to be drawn. Future stress recovery studies should employ longitudinal survey designs (Fritz & Sonnentag, 2005), daily studies (Sonnentag,

Binnewies, & Mojza, 2008), or diary studies like Sonnentag's (2001) research on teachers.

The survey for this study was conducted as an online survey format. It required individuals to have an email address unique from any other participant in the study. There were a significant number of email failure notifications indicating that participants were unable to receive the study invitation. Following up with these individuals could have increased the small collected sample size. The participants were from a wide variety of industries and job positions. Some organizations hold tighter securities for allowing outside mass emails to come through. Collecting data from one given organization could have also decreased the amount of notification failures and increased sample size.

Two separate samples were collected with this survey. The primary one included participants from all industries and a smaller one from a career technology center. These samples were similar on all strain outcomes, detachment means, and demographic variables. However, analysis of variance tests revealed that they were different on the other included variables. Because this difference was not meaningfully significant, the second sample remained in the total sample but sample was controlled for in all analyses.

The current study was solely focused on individual outcomes. That is, it did not consider organizational outcomes in addition to the strain outcomes. Future studies should consider organizational outcomes such as turnover, job satisfaction, organizational citizenship behaviors, and job performance in order to further the literature on how proactive personality and stress recovery may impact an organization. For example, Greguras and Diefendorff (2010) studied the effects of proactive personality on both

employee and organizational-related outcomes. They found that when employees' basic needs are satisfied, not only is their life satisfaction enhanced but they are also able to perform at higher levels and engage in more citizenship behaviors. These findings were similar to Li, Liang, and Crant's recent study (2010) revealing that, depending on the quality of leader-member relationships, proactive individuals experience greater satisfaction and perform more organizational citizenship behaviors. Proactive individuals are clearly valuable assets to organizations as they are more likely to be top performers and reach higher career success (Fuller & Marler, 2009). However, these benefits may eventually diminish if these employees are unable to recover from work stress.

Understanding relationships between stress recovery and organizational outcomes for proactive personalities may help to retain such employees, or provide guidance on how to strategically focus efforts on retaining those lower in proactivity.

Additionally, there was no mention or analyses of dimensions related to social support and activity. Fritz and Sonnentag (2005) studied the effects of weekend recovery experiences. Social activity was shown to replenish resources that have positive effects on health and task performance (Fritz & Sonnentag, 2005). This study also found that resources built up during weekend hours are used for the fulfillment of everyday work tasks. The need for relatedness is an innate need identified by Deci and Ryan but was not included in this study. Work relationships or interactions can range from healthy to stressful. A recent study (Li, et al. 2010) found that proactive personality was associated with establishing high quality relationships with one's supervisor. This may impact the frequency of conflict stressors at work or how they are ultimately managed. Conflict at work is a commonly researched stressor and it could provide new information on how

individuals choose to recover from this type of work stress during non-working hours with outside relationships.

Control over free time is another recovery experience included in Sonnentag and Fritz's (2007) taxonomy and could be influenced by family duties or outside responsibilities not accounted for in the current study. Individuals may not be engaging in the activities that they want to after work, but instead what they must do or are able to do. This depends on the amount of control they have to choose what to do with their after-working hours. As previously mentioned, the concept of control exists in recovery experiences and as a proactive personality tendency. It would be interesting to examine how various aspects of control (i.e. desire for control, work-related control, control over leisure time activities, and locus of control) impact the recovery-strain relationship when taking into account proactive personality and types of stressors. For example, Parker and Sprigg (1999) tested Karasek's (1979) demand-control model and found that proactive personality moderated the demands-control interaction when predicting strain. For passive employees, there was no demands-control interaction. For highly proactive employees, higher job demands were associated with strain when control was low, but demands has a much weaker association with strain when job control was high.

All of the relationships examined in this study refer to the last half of the stress process. Recovery from stress and strain follows an initial stressor(s). Considering stressors and different stressor types (e.g., interpersonal conflict, workload, etc.) may provide unique information or impact the relationships found in the current study. For example, workload-related stressors may relate differently to detachment than mastery and result in different relationships between detachment and strain. Past research has

shown workload to negatively relate to detachment during non-working evening hours (Sonnentag & Bayer, 2005). This indicates that employees have a difficult time detaching from work after being confronted with high workloads. Including stressors in a future model would allow for a more encompassing explanation.

A critical finding in this study is the importance of individual differences (in terms of need satisfaction and proactive personality) in the recovery process. Stressors and recovery experiences are environmental factors; thus, a dual emphasis on the environment and person in that environment emerge in explaining the current study's findings. Person-Environment Fit theory (P-E Fit; Caplan, 1983) indicates that behaviors, attitudes, and well-being are determined jointly by the person and the environment. According to this theory, stress arises from a misfit between the two in terms of the objective or subjective person and the objective or subjective environment. P-E Fit theory could support the findings of the present study. Personal attributes (i.e. low proactivity) fit with certain recovery experiences (i.e. detachment). That is, passive individuals experience less strain if they detach than if they do not detach because it aligns with how they perceive their subjective environment during detachment. Highly proactive employees do not reduce stress by detaching because it does not fit their personal attributes. Instead, they are able to accurately perceive their personal attributes during mastery activities that further contribute to their subjective person.

Conclusion

Perhaps mastery is the recovery experience of choice for highly proactive individuals because it serves the purpose of fulfilling their needs. In turn, they would more readily keep their needs satisfied thus supporting SDT. Those who are lower in

proactivity are more likely to feel increased stress when they do not detach than if they do detach. This would suggest that if they do not detach then they are possibly spending additional resources that contribute to their feelings of stress. COR theory would then support this explanation for passive individuals. Neither theory can ultimately be disregarded nor be credited with fully explaining the present findings. Instead, it appears that proactive personalities should be encouraged to spend their evening hours seeking learning opportunities that provide insightful challenges and not to detach. Their passive counterparts should attempt to leave work at work.

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APPENDIX A

Demographics

Please provide the following demographic information.

Age:

Job title:

Year you have worked in your current position:

Years you have worked for your current organization:

Are you paid Hourly or Salary? Hourly Salary

Please indicate your gender: Female Male

Which best describes your highest level of education completed?

Less than a High School diploma

High School diploma

Some college

College degree (AA, BS, or BA)

Graduate degree (Masters, PhD, MD, JD, etc.)

Prefer not to say

Please indicate your employment situation.

I have a full time job (35 hours or more per week)

I have a part-time job (less than 35 hours per week)

I am a full-time homemaker

I am retired

I do not currently work

How many hours do you work in a typical week?

10 or fewer hours	11-20 hours	21-30 hours	31-40 hours	41-50 hours	51-60 hours	More than 60 hours
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In a typical work week, how many hours do you spend doing work (for your job) during non-work hours? If you telecommute or work out of your home regularly, only count hours that you work over and above your normal work hours.

None	1-2 hours	3-5 hours	6-10 hours	11-15 hours	16-20 hours	More than 20 hours
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APPENDIX B

Recovery Experiences

Please indicate the extent to which you agree with each of these statements about your non-work life.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6	7

During my time away from work...

- ...I don't think about work at all.
- ...I kick back and relax.
- ...I get a break from the demands of work.
- ...I do something to broaden my horizons.
- ...I feel like I can decide for myself what to do.
- ...I take time for leisure.
- ...I use the time to relax.
- ...I do things that challenge me.
- ...I seek out intellectual challenges.
- ...I forget about work.
- ...I learn new things.
- ...I decide my own schedule.
- ...I do relaxing things.
- ...I determine for myself how I will spend my time.
- ...I take care of things the way that I want them done.
- ...I distance myself from my work.

APPENDIX C

Proactive Personality

Please answer the following questions.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6	7

I am constantly on the lookout for new ways to improve my life.

Wherever I have been, I have been a powerful force for constructive change.

If I see something I don't like, I fix it.

No matter what the odds, if I believe in something I will make it happen.

I excel at identifying opportunities.

I am always looking for better ways to do things.

I can spot a good opportunity long before others can.

I love being a champion for my ideas, even against others' opposition.

If I believe in an idea, no obstacle will prevent me from making it happen.

Nothing is more exciting than seeing my ideas turn into reality.

APPENDIX D

Need Satisfaction

Please continue using the following scale to respond to the items:

Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6	7

I feel like I can make a lot of inputs to deciding how my job gets done.

I really like the people I work with.

I do not feel very competent when I am at work.

I feel pressured at work.

I get along with people at work.

I pretty much keep to myself when I am at work.

I consider the people I work with to be my friends.

I have been able to learn interesting new skills on my job.

Most days I feel a sense of accomplishment from working.

My feelings are taken into consideration at work.

On my job I do not get much of a chance to show how capable I am.

People at work care about me.

I feel like I can pretty much be myself at work.

The people I work with do not seem to like me much.

There is not much opportunity for me to decide for myself how to go about my work.

People at work are pretty friendly towards me.

There are not many people at work that I am close to.

People at work tell me I am good at what I do.

I am free to express my ideas and opinions on the job.

When I am working I often do not feel very capable.

When I am at work, I have to do what I am told.

APPENDIX E

Physical Health Questionnaire

For the following items, indicate how often you have experienced any of these in the past month.

Not at all	Rarely	Once in a while	Some of the time	Fairly often	Often	All of the time
1	2	3	4	5	6	7

How often did you get a headache when there was a lot of pressure on you to get things done?

How often did you get a headache when you were frustrated because things were not going the way they should have or when you were annoyed at someone?

How often has your sleep been peaceful and undisturbed?

How often did you feel nauseated (“sick to your stomach”)?

How often have you had minor colds (that made you feel uncomfortable but didn’t keep you sick in bed or make you miss work)?

How often have you had respiratory infections more severe than minor colds that “laid you low” (such as bronchitis, sinusitis, etc.)?

How often have you suffered from an upset stomach (indigestion)?

How often did you have to watch that you ate carefully to avoid stomach upsets?

How often have you had difficulty getting to sleep at night?

How often have you woken up during the night?

How often have you had nightmares or disturbing dreams?

How often have you experienced headaches?

How often were you constipated or did you suffer from diarrhea?

When you have a bad cold or flu, how often does it last longer than it should?

Perceived Stress

In the last month, how often have you felt...

Never	Almost Never	Sometimes	Fairly Often	Very Often
1	2	3	4	5

...that you were unable to control the important things in your life?

...confident about your ability to handle your personal problems?

...that things were going your way?

...difficulties were piling up so high that you could not overcome them?