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## The Moderating Effects of Work Control and Leisure Control on the Recovery-Strain Relationship

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The Moderating Effects of Work Control and Leisure Control on the Recovery-Strain  
Relationship

Jason N. Jaber

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

Minnesota State University

Mankato, Minnesota

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This thesis paper has been examined and approved.

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## ABSTRACT

## The Moderating Effects of Work Control and Leisure Control

## On the Recovery-Strain Relationship

Jaber, Jason N., M.A. Minnesota State University, Mankato, 2012

The purpose of the current study is to improve understanding of the process of recovery from work related stress by examining work and leisure control as moderating variables of the recovery-strain relationship. This study examines the relationships between control (work/leisure), recovery experiences (mastery/detachment), and strain outcomes (need for recovery/psychological distress). Moderation multiple regression analyses ( $N= 233$ ) reveal that work control moderates the relationship between mastery and psychological distress, mastery and need for recovery, as well as the relationship between psychological detachment and need for recovery. It appears that among individuals high in work control, mastery is related to lower psychological distress and need for recovery than those with low work control. Results also indicate that at low levels of work control, the negative relationship between psychological detachment and need for recovery is stronger than at high levels of work control. Thus, it appears that engaging in psychological detachment is more important for employees with low levels of work control than those with high levels of work control. Important implications for organizations and its employees can be drawn from this research.

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The Moderating Effects of Work Control and Leisure Control  
On the Recovery-Strain Relationship

A review of the literature on occupational stress reveals that individuals experiencing stress on the job have low levels of psychological well being and suffer from health related problems (i.e. gastrointestinal disorders, depression, anxiety) (Spector, 2000; Sulsky & Smith, 2005). Those individuals experiencing job-related stress need opportunities to recover; if recovery does not occur, burnout, poor job performance, and reduced psychological and/or physical well-being will likely arise (Sonnetag & Fritz, 2007; Spector, 2000; Sulsky & Smith, 2005). Stress researchers have documented the positive correlation between work-related stressors and strain, such that exposure to stress increases an individual's likelihood of experiencing a broad array of psychological and physiological ailments. Work-related stressors such as conflict, high workload, or low control in face of high demands, may lead to negative outcomes such as increased healthcare costs, headaches, cardiovascular disease, turnover, and low job performance (Fox, Dwyer, & Ganster, 1993; Sonnetag & Fritz, 2007; Spector, 1986; Sulsky & Smith, 2005).

In addition to documenting the positive relationship between stressors and strain, researchers have worked to identify personal and situational factors that might play a role in the stressor-strain relationship. For example, decades of research on work control (Spector, 1986) has shown that individuals whose jobs afford them greater control over their work will experience fewer negative outcomes (Karasek, 1979). More recently, researchers have begun examining the importance of recovery in reducing negative outcomes of work stressors. When individuals are able to recuperate from the effects of a

day's work, they are less likely to experience the various strain outcomes and (promote a healthy and productive workforce). Increased levels of control during work and leisure time should afford individuals the opportunity to engage in activities that promote recovery and well-being. That is, the positive relationship between control and recovery should result in beneficial outcomes for individuals experiencing work related strain (Sonnentag & Fritz, 2007). This paper discusses research on control and recovery and examines the moderating role of work control and leisure control on the recovery-strain relationship.

### **Recovery**

Individuals who experience job-related stress need opportunities to recover during non-work hours. If recovery does not occur, burnout, poor job performance, and negative psychological and/or physical wellbeing will likely arise (Sonnentag & Fritz, 2007; Sulsky & Smith, 2005; Totterdell, 2005). According to Meijman and Mulder (1998), recovery is often referred to as a process during which individual functional systems that have been called upon during a stressful experience return to pre-stressor levels. There are a number of ways to recover from work, and recovery activities can be both active and passive. According to Sonnentag and Fritz (2007), work recovery experiences can be differentiated into four distinct categories: psychological detachment, relaxation, mastery, and control.

#### *Psychological detachment*

Psychological detachment from work can be described as an "individual's sense of being away from the work situation" (Etzion, Eden, & Lapidot, 1998). Sonnentag and Fritz (2007) describe psychological detachment as mental disengagement from work;

they state that detached individuals are not concerned with or engaged in any work-related duties off work (i.e. receiving job-related phone calls or answering work related e-mails at home; Fritz, Yankelevich, Zarubin, & Barger, 2010). Being physically away from work is necessary but insufficient to experiencing recovery. Not only must an individual be away from work, they must cognitively “switch off” from work. That is, individuals must psychologically detach from work to experience recovery (Sonnentag & Fritz, 2007).

Although Fritz et al. (2010) found that while high levels of psychological detachment led to improved employee well-being, only moderate levels of psychological detachment led to improved employee job performance. In other words, they discovered that high and low psychological detachment do not significantly improve employee job performance. This curvilinear relationship between detachment and job performance suggests that low levels of detachment prevent individuals from recovering (and regaining depleted resources) from work demands that will result in decreased job performance. However, too much detachment may also lead to low job performance because it may take these employees longer to get into a “working mode” (Fritz et al., 2010). Fritz et al. (2010) recommend that organizations and their leaders attempt to support employee detachment by insisting their employees do not answer work related e-mails or engage in work related tasks while away from work.

### *Relaxation*

Relaxation is characterized by a state of limited physical and psychological activation (e.g., listening to music). Sonnentag and Fritz (2007) suggest that engaging in relaxation results in positive affect. Furthermore, relaxation experiences help to reduce

the negative affect that results from job stress. Individuals typically experience relaxation when they engage in activities that require few to no social demands as well as limited challenge and physical or intellectual effort (i.e. sleep, meditation, passive leisure; Sonnentag & Fritz, 2007). According to Sonnentag and Fritz (2007), there is empirical research supporting the claim that relaxation reduces strain (health problems, need for recovery, emotional exhaustion). However, recent research has failed to show relaxation to be an important factor in reducing strain (compared to mastery and detachment; Fox, Tange & Perez, 2008).

### *Mastery experiences*

Mastery experiences refer to off the job activities that allow for personal growth. Mastery experiences allow individuals to increase competence and proficiency for certain activities. These experiences distract individuals from their job by providing experiences and learning opportunities in domains different from what they experience at work. Unfortunately, engaging in mastery experiences may put additional demands on individuals (self-regulation); the additional demands that mastery experiences often present (e.g. learning a new task) introduces an increased need of self-regulation for mastery oriented individuals. However, recovery often occurs because mastery experiences help individuals to gain new internal resources such as skill, competency, and self-efficacy (Hobfoll, 1998).

Recovery experiences (especially detachment and relaxation) facilitate recovery because they require no additional utilization of resources that were previously demanded during work. Research by Sonnentag and Fritz (2007) reveals that psychological detachment is perhaps the most beneficial and efficacious process to promoting recovery.

More specifically, because psychological detachment is associated with distancing oneself from work related thoughts, demands, or actions, it will help to restore depleted psychological resources and increase employee wellbeing (Fritz et al., 2010). However, Fox et al. (2008) found those who engage in mastery activities experience sustained wellbeing to a greater extent than those who do not. These results suggest that perhaps mastery helps to facilitate recovery by building new resources. Few significant findings exist regarding the role of relaxation experiences. It is important to note that these categories of recovery experiences are not mutually exclusive. Individuals can and do choose to engage in more than one type of recovery experience. Sonnentag and Fritz (2007) report significant positive correlations between mastery, detachment and relaxation with correlations ranging from .19 to .46.

However, the choice to engage in one or more types of recovery experiences assumes that one has the ability to do so. In fact, many individuals may have commitments at work, at home, or in the community that prevent them from engaging in their preferred recovery experiences. Thus, the amount of control an individual has over his or her work and leisure time needs to be considered when examining the effects of recovery experiences on strain.

### **Control**

Although recovery experiences are important to reducing strain, one must have opportunities to relax, detach, or engage in mastery before any of these recovery experiences can be employed. Thus, control is a variable that must be considered when examining the recovery-strain relationship.

In general, control relates to an individual's ability to choose between two or more options in face of necessary action. Control is an important construct to examine because it potentially affords individuals an opportunity to gain internal resources (Hobfoll, 1998). For purposes of this study, the authors discuss control as if it were two separate constructs. That is, control will be divided into work control and leisure control. Work control provides individuals with the ability to choose between two or more options regarding work processes. On the other hand, leisure control provides individual with the ability to choose between different options regarding leisure time activities.

#### *Work Control*

Work control will be discussed in terms of the amount of control an individual has over the work they do (during work); that is, the level of decision latitude or autonomy an individual has regarding work strategies, processes, and schedules. Karasek's (1979) Demands-Control model is one of the most influential theories in occupational health psychology. This theoretical framework posits that employees will experience high levels of strain when faced with high job demands, and low job control. Karasek's (1979) Demands-Control model makes the assertion that control will buffer the negative effects of job related stressors.

A meta-analysis conducted by Spector (1986) showed that high levels of employee perceived job control (autonomy, participative decision making) are positively correlated with organizationally salient outcomes such as job satisfaction, commitment, motivation, and performance. Perceived job control is the extent of decision latitude an individual believes he/she has (Spector, 2000). Furthermore, Spector (1986) showed that perceived control is negatively correlated with physical and emotional strain outcomes,

absenteeism, and turnover. If individuals experience high levels of strain, the organization may suffer due to the manifestation of counterproductive behavior. That is, employees with high strain may become frequently absent from their job, or have increased intentions to quit (Spector, 2000).

It should be noted that job control itself may be a stressor if increased control introduces added effort, demands, and responsibility the individual perceives as threatening to resources. However, if the individual is high in self-efficacy they are more likely to perceive the added responsibilities of work control positively (Spector, 2000). Research suggests that control be “controllable”; that is, an individual should have the opportunity to accept or decline increases in work control (Spector, 2000).

According to Härmä (2006) worktime control (a specific type of job control) reflects an employee’s ability to make decisions about the duration, position, and distribution of work time; in other words, autonomy over worktime (p.503). Although Härmä (2006) identifies worktime control as a specific type of work control, many general measures of work control incorporate such concepts, including, for example, Ganster’s (1989) job control measure. Individuals with work control (more specifically, control over work schedules) have the ability to create work schedules that allow for optimal time and length of leisure time, leading to increased time for recovery experiences (Mojza, Lorenz, Sonnentag, & Binnewies, 2010). Employees with high levels of work control have the opportunity to choose when they need a break and choose recreational activities that best match recovery needs (Reinecke, 2009).

Reinecke (2009) found that job control is positively correlated with the use of computer games during work hours. Furthermore, it was discovered that the use of

computer games in the workplace facilitates significant levels of recovery (for all recovery experiences). Results indicated that those with high levels of work fatigue (or need for recovery) experienced high levels of recovery during gameplay. This data suggests that having control over one's work time (i.e. having the opportunity to take breaks and engage in gameplay) facilitates recovery from work-related strain. Gameplay at work is one example of the blurring of lines between work and non-work spheres. Thus, one may engage in recovery while on the job as a means of reducing the effects of job demands. On the other hand, work demands may continue to impact individuals who have physically left the workplace but are not able to leave work behind (either physically or psychologically).

#### *Leisure Control*

Leisure control can be described as an individual's level of decision latitude regarding the activities one engages in during leisure time. In other words, leisure control can be conceptualized as the degree to which an individual can decide which leisure activity to pursue and how to pursue that activity (Sonnentag & Fritz, 2007). Ultimately, control allows for the opportunity to choose leisure activities that are preferred and those that will be supportive of the recovery process.

Increasing leisure control for individuals often leads to decreases in strain. In fact, Griffin, Fuhrer, Stansfield, and Marmot (2002), found that both men and women experienced higher levels of depression (five years later) when leisure control was low compared to men and women with high levels of leisure control. If an individual has high levels of leisure control and they are experiencing work related strain, it is likely that this



individual will utilize the control they possess over their leisure time to engage in recovery experiences that will be effective in reducing strain.

There are individual differences between the amount of leisure control people possess. For instance, single individuals (with no dependents) may lack obligations outside work that results in high levels of leisure control. However, single parents may have less flexibility to choose the activities they engage in during off the job hours. That is, single parents may have familial obligations and low levels of leisure control compared to single non-parents. Familial obligations are not the only leisure time demand that individuals face. Many experience additional demands from commitments to volunteer organizations, church groups, or other community organizations. Individuals who have control over their leisure time have the ability to choose recovery activities that they prefer and those that will have the largest impact on recovery.

Not surprisingly, control over leisure time is linked to control over work. If an individual has work-related demands that involve working overtime, taking work home, or being on call, they may not be free to exercise control over leisure time that they might otherwise have. Sonnentag and Fritz (2007) support the claim that a positive correlation exists between work control and leisure control; specifically, they found a significant correlation of .16 ( $p < .05$ ). That is, if an individual lacks control over work processes, it is likely that this individual will also lack opportunities to exert control over leisure time. An explanation for this positive relationship is provided by Meissner (1971) who stated that individuals with high levels of job control are more likely to attempt to exercise leisure control due to a “spillover” (from work to non-work) effect. This “spillover”

effect posits that if an individual experiences work control, they will likely attempt to exercise control over leisure time too.

### **Control and Recovery**

Leisure control and work control have direct links to recovery. It is often the case that as work and leisure control are increased, individuals gain the ability to choose what recovery experiences to engage in. Thus, it is predicted that as individuals gain work and leisure control, they will increase engagement in recovery experiences (especially mastery and psychological detachment). Specifically, if an individual is experiencing strain they will utilize their high levels of work and/or leisure control to engage in activities most supportive of recovery. Recent research reveals that work control is positively correlated with mastery (Siltaloppi, Kinnunen, & Feldt, 2009) and that leisure control is positively correlated with both mastery and psychological detachment (Sonntag & Fritz, 2007; Siltaloppi et al., 2009).

Research has also shown that as individuals lose work control, it is necessary to utilize recovery experiences to buffer the negative effects of low work control. Siltaloppi et al. (2009) found that mastery and detachment interacted with work control to predict strain outcomes (e.g. need for recovery). Specifically, individuals who engage in high levels of psychological detachment report less need for recovery, especially under conditions of low work control, than those with low detachment. Additionally, individuals who engage in high mastery report less need for recovery than those with low mastery, especially under conditions of low work control. In other words, psychological detachment and mastery were protective mechanisms against increased need for recovery under poor job control. Thus, it appears that recovery experiences (e.g. mastery and

detachment) are particularly important for individuals with low work control.

Furthermore, research indicates that a lack of job control is significantly related to high levels of need for recovery (Siltaloppi et al., 2009).

### **Strain Outcomes**

If individuals are unable to recover from work stress, negative strain outcomes may arise. As previously mentioned, research from the stress literature has found that job stressors have negative outcomes for the individuals and for organizations. There are a number of ways to measure an individual's level of strain. The various methods focus on psychological as well as physiological strain outcomes. The present study will focus on two strain outcomes: need for recovery and psychological distress.

#### *Need for Recovery*

According to Jansen, Kant, and VanDenBrandt (2002), need for recovery from work is defined as:

The need to recuperate from work-induced fatigue, primarily experienced after a day of work. The concept involves the intensity of work-induced fatigue, both mentally and physically, as well as the time period required to return to a normal or pre-stressor level of functioning (p. 323).

An individual's need for recovery is negatively correlated with the aforementioned recovery experiences (psychological detachment, relaxation, mastery). That is, those who have the opportunity to engage in recovery experiences (i.e. psychological detachment from work, relaxation, mastery experiences) are less likely to report a "need for recovery." Those who report a high need for recovery often feel that the time available for recovery is insufficient for restoring personal resources (Sonnetag & Fritz, 2007). If an individual does not recover from work, depleted resources (i.e. low ability to focus and low levels of attention) may become noticeable in lower levels of job performance

(Fritz et al. 2010). Sonnentag and Fritz (2007) found need for recovery to be negatively correlated with psychological detachment, relaxation, and mastery. Research has found there to be a sizeable correlation ( $r = .60$ ) between the “need for recovery” scale and negative strain outcomes (van Veldhoven & Broersen, 2003).

### *Psychological Distress*

The Perceived Stress Scale (PSS) is one of the most commonly used measure of psychological distress (Cohen, Kamarck, & Mermelstein, 1983). It has adequate levels of reliability and validity and the scale assesses the appraised stressfulness of a respondent's life situations. The items on the scale examine how unpredictable, uncontrollable, and overloaded the respondent finds their life to be. Items also measure a respondent's current level of experienced stress (Cohen et al., 1983). According to Lazarus (1966) the cognitive appraisal of situations is an important factor to consider when evaluating work related stress. That is, the influence of a stressor is determined by an individual's perception of the stressors stressfulness (Cohen et al., 1983). In other words, if an employee thinks he/she is stressed, then he/she probably is. The perception of an event/situation (as stressful or not) acts as a mediating variable between stressors and strain outcomes; according to Lazarus' (1966) model, if there is no perception of threat, there will be no stress response.

### **Conservation of Resources (COR) Theory and the Recovery Process**

The Conservation of Resources (COR) Theory facilitates our understanding of the relationship between recovery and strain. When individuals experience stressful situations, they utilize stored resources to deal and cope with the stressors. In order to recover from stress, individuals must gain new resources and restore lost and/or

threatened resources (Hobfoll, 1989). COR Theory proposes that, gaining new resources will help to restore threatened resources (Sonnentag & Fritz, 2007). According to COR Theory, recovery will occur when individuals disengage themselves from work demands (cognitive detachment) and avoid activities (job related) that call upon the same resources as those required at work (Hobfoll, 1989). Sonnentag (2001) stated that recovery will only occur in situations where no additional demands are placed on the resources and functional systems used during work time. For instance, jobs requiring high levels of concentration and cognitive functioning (i.e. air traffic controllers) will impede the recovery process and result in negative wellbeing if individuals engage in cognitively demanding leisure activities. In order to recover, these individual would need to engage in activities that demand low levels of cognitive functioning (e.g. exercising, listening to music). Furthermore, leisure activities that require high physical demands (e.g. weightlifting) would not interfere with this individual's recovery process because physical resources are not depleted during work (Sonnentag, 2001).

Leisure control fits well into the theory of conservation of resources in that those who have control over leisure activities can engage in those recovery experiences that restore the most depleted resources. Having control over leisure time also allows the individual to engage in activities that do not require the same functional systems that are called upon during work (Hobfoll, 1998).

Recent research by Mojza, Lorenz, Sonnentag, and Binnewies (2010) found that volunteer work during leisure time is positively correlated with mastery experiences. It is suggested that volunteer experiences contribute to recovery (through mastery

experiences, self-esteem, and self-efficacy) and attenuate job strain outcomes by creating new resources (i.e. learning new competencies) (Mojza et al., 2010).

### **The Present Study**

The current study will examine the relationships between control (work and leisure), recovery experiences (mastery and detachment), and strain outcomes (need for recovery and psychological distress). Because previous research has not demonstrated important effects concerning relaxation, this study restricts the discussion of recovery experiences to mastery and psychological detachment. Specifically, the study will assess the relationship between work and leisure control and recovery experiences (mastery and detachment) as well as the relationship between recovery experiences (mastery and detachment) and strain (need for recovery and psychological distress). Furthermore, I will test whether work control and/or leisure control moderate the relationship between recovery experiences and strain (Figure 1 & 2). As Baron and Kenny (1986) state, a moderating variable is a third variable that influences the strength and/or direction of the relationship between two other variables. It is hypothesized that work and leisure control will affect the strength and/or direction of the relationship between recovery experiences and strain outcomes.

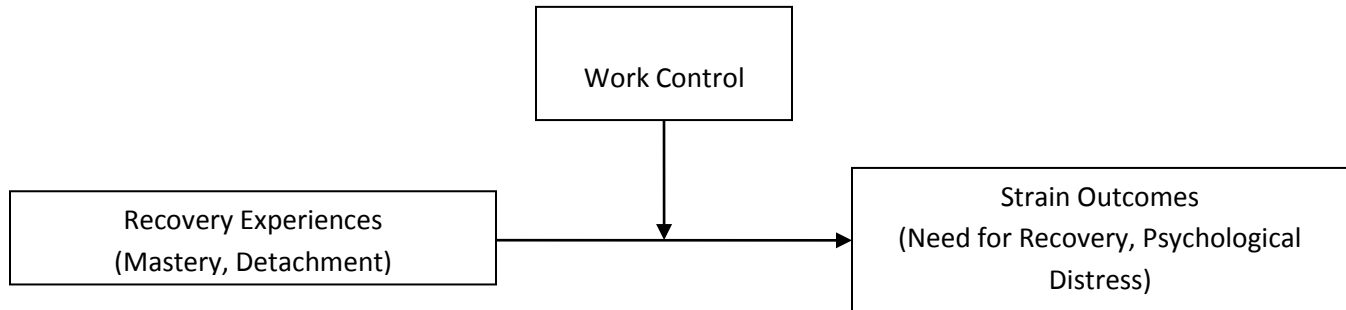
In agreement with COR Theory, it is hypothesized that work and leisure control will be positively correlated with mastery experiences and will lead to more recovery (i.e., less need for recovery and reduced psychological distress) by building new resources (Hobfoll, 1998). Furthermore, it is hypothesized that work and leisure control will be positively correlated with psychological detachment by allowing the individual to

select activities best suited to promote the recovery process (i.e. selecting activities that do not call upon the same resources that are called upon during work).

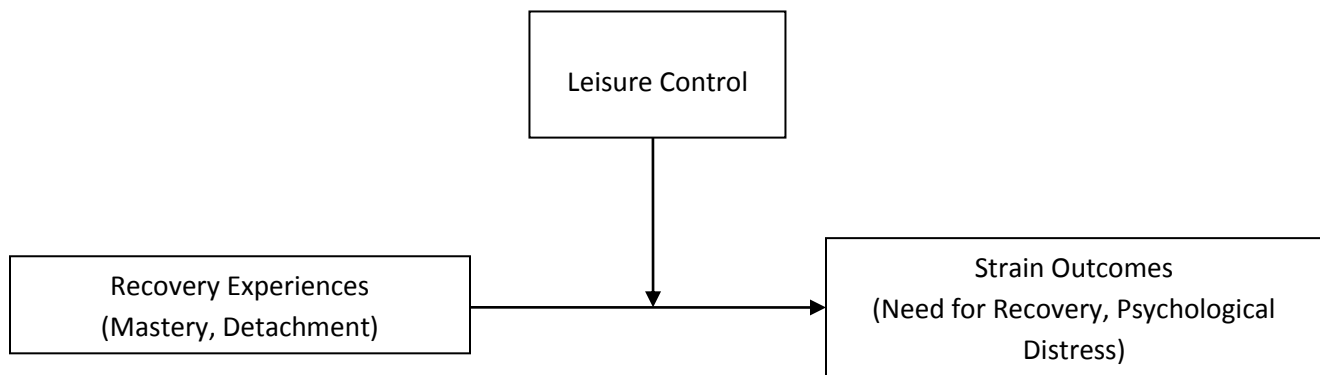
In line with previous research (Sonnentag & Fritz, 2007), the authors expect negative relationships between recovery experiences (mastery and detachment) and strain. However, it is expected that control will moderate this relationship, such that the positive effects of recovery experiences will be greater under conditions of increased work and leisure control. Research suggests that those individuals experiencing high levels of recovery tend to have reduced levels of strain. The authors believe this relationship is moderated by work and leisure control, where those with high control will engage in more recovery experiences than those with low control which results in reduced strain outcomes.

Volunteering during leisure time exemplifies an instance of high leisure control, and volunteering provides opportunities for mastery experiences. In accordance with previous research, it is hypothesized that mastery experiences will emerge as having a significant positive relationship with leisure control and that leisure control will significantly moderate the mastery-strain relationship. Specifically, it is predicted that those with high levels of leisure control will experience greater reductions in strain outcomes when engaging in mastery experiences (Mojza et al., 2010).

*Figure 1.* Model of Work Control Moderating the Recovery-Strain Outcome Relationship.



*Figure 2.* Model of Leisure (Recovery) Control Moderating the Recovery-Strain Outcome Relationship.



In accordance with previous research, it is hypothesized that:

***Hypothesis 1:*** *Work control will be positively correlated with (a) mastery, and (b) psychological detachment.*

***Hypothesis 2:*** *Leisure control (Recovery Control) will be positively correlated with (a) mastery and (b) psychological detachment.*



**Hypothesis 3:** *Recovery experiences (mastery, relaxation, psychological detachment) will be negatively correlated with strain outcomes (need for recovery and psychological distress).*

Prior research (Fox et al., 2008; Sonnentag & Fritz, 2007) lends support to my proposed hypotheses that engaging in mastery and detachment experiences will reduce strain outcomes to a greater extent when control (work/leisure) is high.

**Hypothesis 4:** *Work control will interact with recovery experiences to predict strain outcomes (psychological distress and need for recovery) in the following manner:*

**Hypothesis 4a:** *Work control will interact with mastery experiences to predict strain (need for recovery and psychological distress), such that the positive effects of work control will be increased for individuals engaging in mastery experiences.*

**Hypothesis 4b:** *Work control will interact with psychological detachment to predict strain (need for recovery and psychological distress), such that the positive effects of work control will be increased for individuals engaging in psychological detachment.*

**Hypothesis 5:** *Leisure control will interact with recovery experiences to predict strain outcomes ((psychological distress and need for recovery) in the following manner:*

**Hypothesis 5a:** *Leisure control will interact with mastery experiences to predict strain (psychological distress and need for recovery), such that the positive effects of leisure control will be increased for individuals engaging in mastery experiences.*

***Hypothesis 5b:** Leisure control will interact with detachment experiences to predict strain (need for recovery and psychological distress), such that the positive effects of leisure control will be increased for individuals engaging in detachment experiences.*

*Proposed Analyses*

Bivariate correlations will be run to assess Hypotheses 1 and 2. Specifically, correlations will be run to examine the relationship between control (work and leisure) and recovery experiences (mastery, relaxation, and psychological detachment). Bivariate correlations will be conducted to examine the relationship between recovery experiences (mastery, relaxation, psychological detachment) and strain outcomes (need for recovery, psychological distress) (Hypothesis 3).

A moderated regression analysis will be used to examine Hypotheses 4 and 5: does work control or leisure control moderate the relationship between recovery experiences (mastery and psychological detachment) and strain outcomes (need for recovery and psychological distress)?

## METHOD

### **Participants and Procedure**

Study data was collected from a total sample of 266 respondents. A small number of respondents ( $n= 33$ ) reported less than 30 hour workweeks and were excluded from all analyses. The final sample (used for data analysis) was comprised of 233 adults (137 female and 96 male) employed full time (35 hours or more per week) in a variety of occupations (Table 1). Complete demographic characteristics of the research subjects are provided in Table 2. The mean age for the current sample was 40.6 years with 58.8 percent being male, average job tenure was 8 years while average organizational tenure was 10.2 years. Typical education levels were as follows: college degree (49.4 percent), some college (25.3 percent), high school diploma (15 percent), and graduate degree (9 percent). On average, 46.4 percent of all participants worked between 41 and 50 hours per week, whereas 37.8 percent worked 31 to 40 hours per week.

Participants were recruited using a snowball sampling approach where undergraduates from a Midwestern university provided up to three names and e-mails for individuals meeting study requirements (more than 22 years old and employed full time). Students received course credit and/or extra credit for providing contact information of eligible individuals. Additional credits were provided to students once the recommended participant completed the questionnaire.

Students signed up to participate in the current study through Sona-Systems, an online participant tracking system. Subsequently, these students received a link to an online survey that allowed them to provide contact information for up to three individuals meeting study requirements. Recommended individuals were then sent a unique link (via

email) to the current survey. The email also included a description of the study and its purpose. Participants were informed that participation in the study was completely voluntary and that all information provided will be kept strictly confidential and used only for research purposes.

### **Measures**

Participants completed a number of established and pre-validated measures (see Appendix C). Analyses will be conducted on data for the following variables: demographics, recovery experiences, control, psychological distress, and need for recovery.

**Demographics.** The current questionnaire included demographic items assessing participant age, sex, job title, educational level, hours worked per week, tenure in organization, and tenure in current position.

**Recovery Experiences.** Recovery experiences were assessed using the Recovery Experiences Questionnaire (REQ). The REQ (Sonnetag & Fritz, 2007) includes items assessing the recovery experiences of mastery, psychological detachment, relaxation and leisure control. This questionnaire contains 22 items addressing each of the four recovery experiences. Participants responded to each question using a 7-point Likert-type scale (*Strongly Disagree* to *Strongly Agree*) with higher scores indicating more engagement in the respective recovery experience. Example items are as follows: *During my time away from work I do something to broaden my horizons* (mastery:  $\alpha = .79$  to  $.82$ ), *I don't think about work at all* (psychological detachment:  $\alpha = .84$  to  $.89$ ), *I kick back and relax* (relaxation:  $\alpha = .85$  to  $.87$ ), *I feel like I can decide for myself what to do* (leisure control:

$\alpha = .85$  to  $.87$ ). For the current study, Cronbach's alpha was  $.85$  for the mastery scale and  $.80$  for the detachment scale.

**Control.** We assessed control over work as well as control over leisure time. Work control was measured using a version of Ganster's (1989) Worker Control Scale as revised by Smith, Tisak, Hahn, and Schmieder, 1997. This scale includes 9 items from Ganster's (1989) original control scale including: *How much control do you have over when you come to work and leave? How much control do you have over the scheduling and duration of your breaks?* These items were rated on a 5-point Likert Scale ranging from *Very Little* to *Very Much* where higher scores indicated increased levels of work control. For the current study, Cronbach's alpha was  $.90$  for the work control scale.

The construct of leisure control was measured using the control subscale of the REQ as described above (Sonnentag & Fritz, 2007). For the current study, Cronbach's alpha was  $.81$  for the scale.

**Strain.** The current study assessed two strain outcomes psychological distress and need for recovery. Psychological distress was measured using four of the most highly correlated items from the 14-item version of the Perceived Stress Scale (Cohen et al., 1983). This scale asked participants to complete items regarding the frequency of experience within the past month. All items were completed using a 5-point Likert scale (*Never* to *Very Often*) with higher scores indicating increased levels of psychological distress. For instance, one item on this scale is as follows: *In the last month, how often have you felt confident about your ability to handle your personal problems.* Cohen, et al (1983) reported a coefficient alpha reliability of  $.72$  for the 4 item scale. For the current study, Cronbach's alpha was  $.82$  for the scale.

Need for recovery (NFR) assesses participants' levels of work-related strain and fatigue. NFR was assessed using an 11 item Need for Recovery Scale (van Veldhoven & Broersen, 2003). Items included: *By the end of the working day, I feel really worn out* and were responded to on a 4-point Likert scale ranging from 1 (*Never*) to 4 (*Always*) with higher scores indicating increased levels of Need for Recovery. The authors report internal consistency reliability of .88 for the measure (2003). For the current study, Cronbach's alpha was .86 for the need for recovery scale.

## RESULTS

### *Preliminary Analyses*

Descriptive statistics were computed and reliability was examined for all variables. There were no problematic measures; thus, 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.

A principal components factor analysis, using varimax rotation, was conducted on all items on the recovery experience questionnaire (REQ) used for data analysis in the present study. Results indicate 3 components for the REQ. Specifically; three components had eigenvalues greater than 1.0. Results also indicate all items load on their respective factors (as indicated by Sonnentag & Fritz, 2007). Subscales were subsequently computed for mastery, psychological detachment, and leisure control. These subscales were used for analyses in the current study.

For exploratory purposes, the relationship between work control and leisure control was examined. The present study found a significant and positive correlation of .34 ( $p < .01$ ) between work control and leisure control (See Table 4). Thus, it does appear that as reported levels of work control increases, so do reported levels of leisure control.

### *Tests of Hypotheses*

Hypotheses 1, 2, and 3 were tested using simple bivariate correlations. Hypothesis 1 was partially supported. In particular, Hypothesis 1a was fully supported. Work control was positively correlated with mastery. The more work control an individual possessed, the greater likelihood that person was to report engaging in mastery experiences ( $r = .26$ ,  $p < .01$ ). Hypothesis 1b was not supported as predicted; however, results indicate a

significant negative correlation between work control and psychological detachment.

That is, the more work control an individual possessed, the less likely that person was to report experiencing psychological detachment ( $r = -.13, p < .05$ ).

Hypothesis 2 was fully supported. Leisure control was positively correlated with mastery and psychological detachment. Specifically, the more leisure control an individual experienced, the greater likelihood that person was to report engaging in mastery experiences ( $r = .39, p < .01$ ) and to report experiencing psychological detachment ( $r = .32, p < .01$ ).

Hypothesis 3 was fully supported. The recovery experiences of mastery and psychological detachment were negatively correlated with the strain outcomes of need for recovery and psychological distress. The more mastery experiences an individual engaged in, the less likely that person was to report experiencing need for recovery ( $r = -.38, p < .01$ ) and psychological distress ( $r = -.39, p < .01$ ). Furthermore, the more psychological detachment an individual experienced, the less likely that person was to report experiencing need for recovery ( $r = -.28, p < .01$ ) and psychological distress ( $r = -.26, p < .01$ ).

Hypotheses 4 and 5 predicted that work and leisure control would moderate the relationship between recovery experiences (mastery and psychological detachment) and strain outcomes (psychological distress and need for recovery). To test the interaction hypotheses, a hierarchical regression analysis was conducted (once the means were centered, and the multiplicative, cross product terms were created) as outlined by Baron and Kenny (1986). Mean centering was conducted to eliminate the possibility of multicollinearity between the main effects and the interaction effects on strain outcomes.

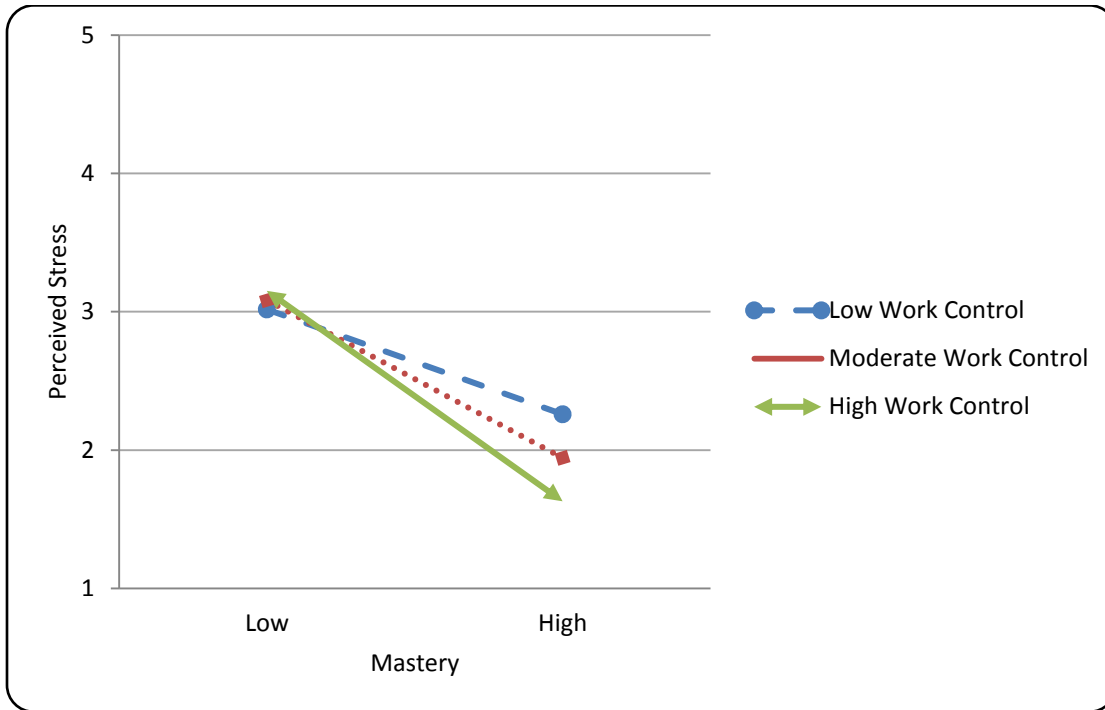


A total of eight analyses were conducted. For all regression analyses, the main effects of recovery experiences (mastery or detachment) and the moderator (work control or leisure control) were entered on the first step. On the second step, the multiplicative interaction term (work control x recovery experience, or leisure control x recovery experiences) 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 psychological distress or need for recovery as the dependent variables.

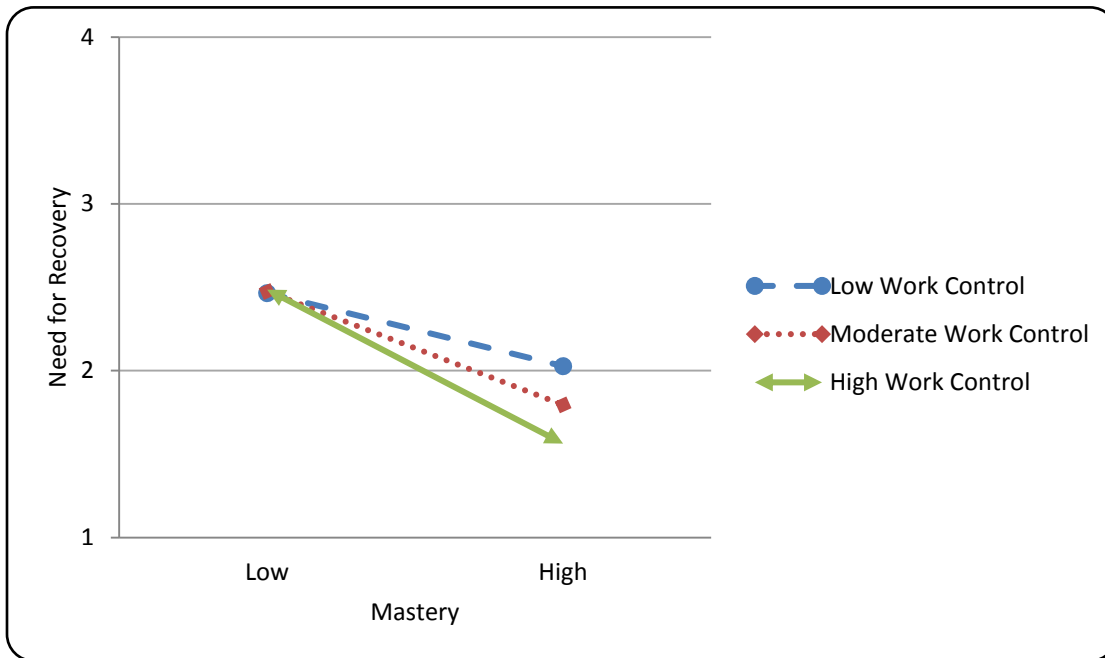
Results partially support Hypothesis 4. Tables 5 and 6 provide results of these moderated regression analyses. Hypothesis 4a is fully supported, when psychological distress served as the criterion, the interaction between mastery and work control ( $\beta = -.119$ ;  $p < .05$ ; see Table 5) was significant. This interaction accounted for 1.3% of the variance in psychological distress. To examine its form, the interaction was plotted using the simple main effects equation, utilizing values  $\pm 1$  SD above and below the mean. Psychological distress was regressed on mastery at high, medium, and low levels of work control. Results are displayed in Figure 3. At high levels of work control the negative relationship between mastery and psychological distress is stronger than at low levels of work control. In other words, among individuals high in work control, mastery is related to lower psychological distress than those with low work control. At low levels of mastery, individuals experience approximately the same level of psychological distress regardless of the level of work control.

Figure 3. Work Control Moderating Mastery and Strain (as measured by Psychological Distress).



When need for recovery served as the criterion, the interaction between mastery and work control ( $\beta = -.126$ ;  $p < .05$ ; see Table 5) was also significant. This interaction accounted for 1.5% of the variance in need for recovery. To examine its form, the interaction was plotted using the simple main effects equation, utilizing values  $\pm 1$  SD above and below the mean. Need for recovery was regressed on mastery at high, medium, and low levels of work control. Results are plotted in Figure 4, at high levels of work control the negative relationship between mastery and need for recovery is stronger than at low levels of work control. In other words, among individuals high in work control, mastery is related to lower need for recovery than those with low work control. At low levels of mastery, individuals experience approximately the same level of need for recovery regardless of the level of work control.

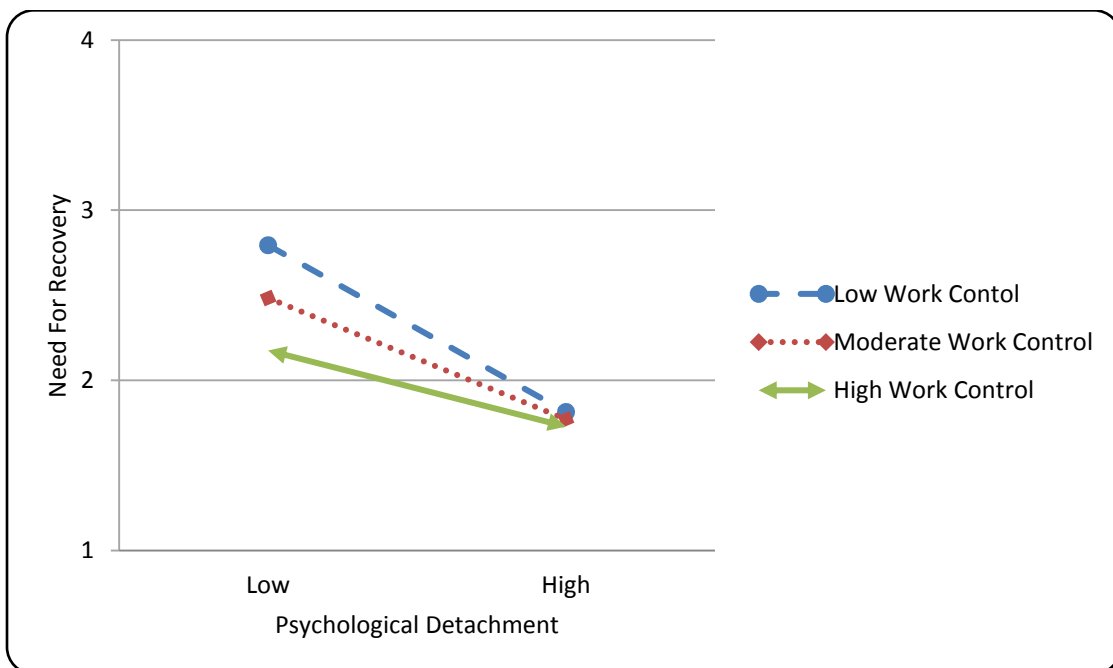
Figure 4. Work Control Moderating Mastery and Strain (as measured by Need for Recovery).



Hypothesis 4b is partially supported, when need for recovery served as the criterion, the interaction between psychological detachment and work control ( $\beta = .135$ ;  $p < .05$ ; see Table 6) was significant. This interaction accounted for 1.7% of the variance in need for recovery. To examine its form, the interaction was plotted using the simple main effects equation, utilizing values  $\pm 1$  SD above and below the mean. Need for recovery was regressed on psychological detachment at high, medium, and low levels of work control. Results are plotted in Figure 5. At low levels of work control the negative relationship between psychological detachment and need for recovery is stronger than at high levels of work control. At high levels of psychological detachment, individuals experience approximately the same level of need for recovery regardless of the level of work control.

All main effects were significant for work control (see Tables 5 and 6). Although results indicate significant main effects for detachment and work control on need for recovery as well as a significant overall regression model, there was no significant interaction between detachment and work control when psychological distress was the criterion of interest (Hypothesis 4b).

*Figure 5.* Work Control Moderating Psychological Detachment and Strain (as measured by Need for Recovery).



Results indicate all main effects were significant for leisure control when need for recovery and psychological distress were the criterions of interest (see Tables 7 and 8). Results from moderated hierarchical regressions did not support Hypothesis 5. Leisure control did not moderate the relationship between recovery experiences (mastery or psychological detachment) and either strain outcome variable (psychological distress or need for recovery). Tables 7 and 8 display a summary of results from all hierarchical multiple regression analyses.

*Table 1. Areas of Employment*

	<i>N</i>	<i>%</i>
Management/Supervisor	40	17.2
CEO/VP/Owner	23	9.9
Education, Training	21	9.0
Office and Administrative Support	15	6.4
Coordinator/Director	14	6.0
Healthcare	14	6.0
Business and Financial Operations	13	5.6
Mechanical/Technician	11	4.7
Sales	11	4.7
Architecture, Engineering, Laborer	11	4.7
Food Prep/Service	10	4.3
Service Representative	10	4.3
Community and Social Services	10	4.3
Other/ Not Disclosed	9	3.9
Computer Related	7	3.0
Life, Physical, Social Sciences/ Research	6	2.6
Legal	5	2.2
Realtor	2	0.9
Arts, Design, Entertainment	1	0.4
Total	233	100.0

Table 2. Sample Demographic Characteristics

Variable	<i>M</i>	<i>SD</i>	<i>N</i>	%
Age	40.6	10.9		
Job Tenure	8.0	7.9		
Organizational Tenure	10.2	9.8		
Gender				
Female			137	58.8
Male			96	41.2
Education Level				
Less than High School diploma			1	0.4
High School diploma			35	15.0
Some college			59	25.3
College degree (AA, BS, or BA)			115	49.4
Graduate degree			21	9.0
Prefer not to say/Missing			2	0.9
Pay				
Hourly			127	54.5
Salary			103	44.2
Hours worked per week				
31-40			88	37.8
41-50			108	46.4
51-60			23	9.9
More than 60			14	6.0

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

	<i>M</i>	<i>SD</i>	Alpha ( $\alpha$ )	Possible Range	Actual Range
Work Control	2.97	1.02	0.90	1-5	1.0- 5.0
Leisure Control	5.37	1.15	0.81	1-7	2.0- 7.0
Recovery Experiences					
Mastery	4.74	1.20	0.85	1-7	1.3- 7.0
Detachment	4.07	1.38	0.80	1-7	1.0- 7.0
Strain					
Psych Distress	2.50	0.78	0.82	1-5	1.0- 4.8
Need for Recovery	2.13	0.51	0.86	1-4	1.0- 3.6

*Table 4. Zero-order Correlations Between All Study Variables*

	Detach	Mastery	NFR	PSS	Work Ctrl
Mastery	.250**				
NFR	-.297**	-.383**			
PSS	-.271**	-.407**	.588**		
Work Ctrl	-.133*	.243**	-.325**	-.274**	
Leisure Ctrl	.312**	.413**	-.412**	-.575**	.335**

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

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

NFR= Need for Recovery; PSS= Perceived Stress Scale



Table 5. Summary of Hierarchical Multiple Regression Analyses Testing Moderating Effect of Work Control (IV=Mastery)

Variable	Psychological Distress				Need For Recovery			
	$\Delta R^2$	<i>B</i>	<i>SE</i> <i>B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE</i> <i>B</i>	$\beta$
Step 1	.198***				.204***			
Work Ctrl		-.143	.05	-.186**		-.125	.03	-.247***
Mastery		-.235	.04	-.362***		-.138	.03	-.323***
Step 2	.013*				.015*			
Work Ctrl		-.125	.05	-.163**		-.113	.03	-.223***
Mastery		-.246	.04	-.378***		-.146	.03	-.341***
Work Ctrl x Mastery		-.074	.04	-.119*		-.052	.03	-.126*

Note.  $N=233$ . \*  $p < .05$ . \*\*  $p < .01$  \*\*\*  $p < .001$ .

Table 6. Summary of Hierarchical Multiple Regression Analyses Testing Moderating Effect of Work Control (IV=Detachment)

Variable	Psychological Distress				Need For Recovery			
	$\Delta R^2$	<i>B</i>	<i>SE</i> <i>B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE</i> <i>B</i>	$\beta$
Step 1	.171***				.224***			
Work Ctrl		-.236	.05	-.315***		-.188	.03	-.372***
Detachment		-.177	.03	-.313***		-.129	.02	-.347***
Step 2	.003				.017*			
Work Ctrl		-.236	.05	-.307***		-.177	.03	-.350***
Detachment		-.182	.04	-.320***		-.136	.02	-.364***
Work Ctrl x Detach		.031	.04	.056		.050	.02	.135*

Note.  $N=233$ . \*  $p<.05$ . \*\*  $p<.01$  \*\*\*  $p<.001$ .

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

Variable	Psychological Distress				Need For Recovery			
	$\Delta R^2$	<i>B</i>	<i>SE</i> <i>B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE</i> <i>B</i>	$\beta$
Step 1	.365***				.225***			
Leisure Ctrl		-.334	.04	-.491***		-.137	.03	-.306***
Mastery		-.133	.04	-.204***		-.110	.03	-.257***
Step 2	.006				.001			
Leisure Ctrl		-.317	.04	-.465***		-.133	.03	-.296***
Mastery		-.133	.04	-.205***		-.110	.03	-.257***
Leisure Ctrl x Mastery		.042	.03	.082		.011	.02	.034

Note.  $N=233$ . \*  $p<.05$ . \*\*  $p<.01$  \*\*\*  $p<.001$ .

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

Variable	Psychological Distress				Need For Recovery			
	$\Delta R^2$	B	SE B	$\beta$	$\Delta R^2$	B	SE B	$\beta$
Step 1	.340***				.201***			
Leisure Ctrl		-.370	.04	-.543***		-.159	.03	-.354***
Detachment		-.058	.03	-.101		-.070	.02	-.186**
Step 2	.000				.003			
Leisure Ctrl		-.370	.04	-.543***		-.155	.03	-.346***
Detachment		-.058	.03	-.102		-.073	.02	-.196**
Leisure Ctrl x Detach		.002	.02	.005		.016	.02	.055

Note.  $N=233$ . \*  $p<.05$ . \*\*  $p<.01$  \*\*\*  $p<.001$ .

## DISCUSSION

The aims of the current study were to examine the relationships between recovery experiences, work control, leisure control, and strain outcomes (as measured by psychological distress and need for recovery). The primary purpose of the present study was to contribute to the literature on work stress and improve the understanding of recovery from work related stress. Specifically, it was the author's goal to examine the moderating effect of work control and leisure control on the recovery experience-strain relationship. Although a number of studies have examined the relationship between recovery experiences and strain, the literature has failed to address the constructs of work and leisure control as moderating the relationship. Utilizing the theoretical framework of The Conservation of Resources, I hypothesized that having work or leisure control would provide individuals with the opportunity to engage in recovery experiences and restore depleted resources that contribute to strain outcomes. Results provide partial support for the moderating effects of work control on the recovery-strain relationship; however, it appears work control only moderates this relationship for specific recovery experiences. Research conducted by Fox et al. (2008) and Sonnentag and Fritz (2007) suggests that mastery and psychological detachment are the most efficacious recovery experiences. Under certain circumstances, the present study lends support to these.

### *Study Findings*

Consistent with research by Siltaloppi et al. (2009), the present study reveals that work control is positively correlated with mastery. Thus, it appears that increasing an individual's level of work control increases employee reports of engagement in mastery experiences. Furthermore, Mojza et al. (2010) found that increasing employee work control (especially control over work schedules) provided individuals with the ability to create work schedules that

allow for optimal leisure time which led to increased opportunities to engage in recovery experiences (including mastery).

Contrary to previous research (Sonnetag & Fritz, 2007) and the authors' prediction, work control was negatively correlated with psychological detachment. That is, increasing an individual's level of work control decreases reports of engagement in psychological detachment. This finding may be a result of the increased effort, responsibility, and demands that often accompany increased levels of control (Spector, 2000). Specifically, as individuals gain work control, they often gain unanticipated responsibilities and expectations that requires engagement in work during non-work hours, these added responsibilities, demands, etc. may inhibit psychological detachment and create blurred boundaries between work and non work. An alternative explanation may relate to the fact that increasing an individual's level of work control allows them to consider a number of options as to how to complete their work. Thus, these individuals may be more likely to continue thinking about their job and its related processes after work which will inhibit psychological detachment.

Consistent with research reviewed earlier (Siltaloppi et al., 2009; Sonnetag & Fritz, 2007), leisure control was positively correlated with both mastery and psychological detachment. Thus, increasing an individual's level of leisure control appears to increase reports of engagement in mastery experiences and psychological detachment. Mastery experiences and psychological detachment had a stronger association with leisure control than with work control. This indicates that those with control over their leisure time attempt to use time away from work for recovery purposes (psychological detachment or mastery) to a greater extent than those with work control. Furthermore, psychological distress and need for recovery had a stronger association with leisure control than with work control. This suggests that as individuals gain

leisure control, strain outcomes (psychological distress and need for recovery) decrease to a greater extent than if work control was increased. However, considering these statements are correlational in nature, no causal assumptions can be made.

The recovery experiences of mastery and psychological detachment were negatively correlated with both strain outcomes (need for recovery and psychological distress). Mastery experiences have a stronger association with both need for recovery and psychological distress than detachment has with these two strain outcomes. It appears that mastery experiences reduce an individual's level of need for recovery and psychological distress to a greater extent than psychological detachment does. These findings are also consistent with the research reviewed earlier (e.g. Sonnentag & Fritz, 2007). However, as I discuss next, this relationship is moderated by control.

### ***Work Control as a Moderator***

One major objective of the current study was to examine the moderating effect of work control on the recovery-strain relationship. The present study contributes to the work stress literature by including control as a moderating variable between recovery experiences and strain. The authors of the present study expected to find that work control will interact with recovery experiences to predict strain in such a way that the positive effects of recovery experiences will be increased for those with greater work control. In other words, as an individual's engagement in mastery or detachment increased, strain was predicted to be reduced to a greater extent when levels of control were high.

In the present study, work control did moderate the mastery-strain (need for recovery/psychological distress) relationship. Specifically, individuals with high levels of work control who experience mastery report less need for recovery and less psychological distress than

those with low work control. These findings indicate that the positive effects of mastery were indeed increased for those with greater control over their work. Given the opportunity to exercise control over work processes, an individual will engage in mastery experiences which will result in reduced strain (in the form of psychological distress and need for recovery).

Furthermore, work control also moderated the detachment-strain (need for recovery) relationship. In this case, it appears that for individuals who are not able to detach from work, a lack of control over their work is particularly detrimental. In general, when detachment is low, those with high levels of work control report less need for recovery than those with low work control. Thus, it appears that engaging in psychological detachment is more important to reducing strain for those with low work control than for those with high work control. It may be that individuals with high work control have the ability to detach during work hours if they need to (e.g. scheduling short breaks) and may also have the ability to detach during non-work hours since they have greater control over work processes. In contrast to those with low work control, those with high work control may have the decision latitude to refrain from thinking about work or answering work related e-mails during non-work hours. Although individuals experience approximately the same level of need for recovery (regardless of the level of work control) when detachment is high, need for recovery is reduced for all levels of work control when individuals increasingly detach.

Reinecke (2009) found that those with high levels of need for recovery experienced high levels of recovery during gameplay. This is one example of how control can afford individuals with the opportunity for recovery. Although not directly tested here, results from the present study are consistent with this finding, suggesting that perhaps having work control will result in engagement in periodic gameplay or other activities during work that allow for detachment. If



the detachment-strain relationship is moderated by work control, as this study demonstrates, this suggests that if an individual has the control to schedule short breaks from work in order to engage in psychological detachment, strain (in the form of need for recovery) may be reduced.

Furthermore, results indicate that work control does not moderate the detachment-psychological distress relationship. Apparently, work control does not affect the strength and/or direction of the relationship between psychological detachment and psychological distress.

It appears that providing control over work processes presents employees with increased opportunities to engage in recovery experiences such as mastery or psychological detachment. If an individual lacks the time, energy, and/or resources to engage in recovery, there is a greater likelihood that the individual will experience negative strain outcomes such as need for recovery or psychological distress, and this strain could ultimately lead to burnout, anxiety, low levels of satisfaction, and so on.

### ***Leisure Control as a Moderator***

The final objective of the current study was to examine the moderating effects of leisure control on the recovery-strain relationship. In the present study, leisure control did not moderate the recovery (mastery/psychological detachment)-strain relationship. Although leisure control was significantly related to mastery and detachment, and significant main effects of leisure control on strain (need for recovery and detachment), the interaction of these variables were non-significant when need for recovery and psychological distress were the criteria of interest. Perhaps individuals do not react similarly to increases in leisure control. Some individuals may react to increases in leisure control by engaging in recovery experiences that they perceive reduce strain; whereas others may not perceive their leisure control activities conducive to reducing strain. Also, leisure control is likely to be affected by many factors that were not

assessed in the present study. In particular, family demands are of particular relevance. Furthermore, the measurement of leisure control may need to be reconsidered. In this study, I used the control subscale of the REQ. While the items (e.g., “I can decide for myself what to do”), appear conceptually appropriate, there is less research and less conceptual development of this construct than there is with work control. Researchers may need to consider reconceptualizing the construct and its measurement.

### *Limitations and Future Directions*

Although the present study contributes to the recovery and control research, there are some important limitations that must be noted. One noteworthy limitation of the current study was that the dependent variables solely focused on two individual outcomes: need for recovery and psychological distress. The criterion variables did not consider other individual outcomes or organizationally salient outcomes. Future research should include dependent variables such as burnout or physical symptoms indicative of strain, such as, gastrointestinal disorders, headaches, and respiratory infections. Furthermore, organizational outcomes such as turnover, job satisfaction, and job performance should be considered in order to further the literature on how work/leisure control and recovery might impact organizations. Research that contributes to the understanding of the relationship between recovery and organizational outcomes for those with high levels of work control may help to reduce turnover or other negative outcomes.

The present study examined work control and leisure control as moderating the recovery-strain relationship. Perhaps other variables, such as personality variables moderate this relationship too. Furthermore, Parker and Sprigg (1999) found that proactive personality moderated the demands-control interaction when predicting strain.

While the significant interactions have contributed to the literature on work stress and the understanding of the moderating effect of work control on the relationship between recovery experiences and strain outcomes, it is important to be cognizant of the fact that only three of the eight hypothesized interactions were significant. For the work control moderation hypotheses, significant interactions were only found to predict one of the two dependent variables when examining psychological detachment as the independent variable. Specifically, work control interacted with psychological detachment to predict need for recovery but not to predict psychological distress. Further research should examine why work control does not moderate this recovery (detachment)-strain (psychological distress) relationship. Furthermore, research should examine why leisure control fails to moderate the recovery-strain relationship. That is, future research should attempt to provide a clearer understanding of the role of leisure control on the recovery-strain relationship and provide defensible rationale for its significant (or non-significant) findings.

Another limitation of the present study was the use of retrospective self-report measures. There are a number of problems with the use of self-report data; specifically, self-report responses are often inflated and there tends to be a retrospective bias in responses. That is, responses are not extremely accurate due to perceptual biases and the many fallacies related to human recall and memory. Furthermore, the exclusive use of self-report measures results in a monomethod bias, which may inflate the size of correlations between variables. Future studies might be well served to utilize psycho-physiological or other physiological measures of strain. For instance, a longitudinal study utilizing objective measures of stress such as cortisol levels may prove beneficial. Although it may be difficult to assess cortisol levels in a study of work-related stress, a potential solution may be to create high fidelity simulations or assessment

centers to recreate work environments that reflect actual workplace processes and stressors. These various attempts may provide greater power to find significant effects for the moderating effect of leisure and work control. Moreover, a longitudinal study may provide more valid and reliable results.

Furthermore, it may be beneficial to look at differences between occupations and its implications on how leisure control or work control may moderate the recovery-strain relationship. In particular, some jobs may afford individuals greater opportunities to exhibit control while others inherently lack opportunities for increased control. The power to discover moderating effects of control may be increased if future research focused on specific occupations.

Future research may also look at mediated moderation models where control moderates the recovery-strain relationship while also considering various mediator variables. Specifically, although there is a moderating effect of work control on the mastery-need for recovery, mastery-psychological distress, and detachment- need for recovery relationships, the relationships between the independent variables and the moderator or the relationships between the moderator and the outcome variables may be mediated by other variables such as technology use.

### ***Conclusion***

The current study provides important insight to organizations where employees experience high levels of work related stress, especially in the form of need for recovery and psychological distress. Specifically, it appears that providing workers with greater levels of autonomy regarding work processes, strategies, and schedules will increase the likelihood of engaging in recovery experiences (i.e. mastery and detachment) which will significantly reduce strain (need for recovery and psychological distress). If individuals do not detach or engage in

mastery experiences, then they are likely expending/not restoring resources that contribute to recovery and are ultimately exacerbating their feelings of stress; COR theory would support this explanation. Employers should consider restructuring their organization to incorporate increase levels of control for their employees.

Organizations should not only consider providing more control to employees, but also refrain from expecting those with low levels of work control to engage in work related activities during non-work hours; that way these employees can engage in psychological detachment. Results from the present study suggest that psychological detachment is more important for those with low levels of work control than for those with high work control. Thus, supervisors and peers should not have work-related expectations after regular work hours for employees with low levels of work control.

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## APPENDIX A

**Instructions to Students:**

1. Thank you for participating in the data collection for this study.
2. The population of this study is full-time working adults who are not students and who are a minimum of 22 years of age.
3. Locate a full-time working adult who is not a student who you think may be interested in participating in this study by completing an online survey.
4. Inform that person of the following:
  - a. The purpose of this study is to examine how people choose to spend their time when they are not at work and how they recover from work related stress.
  - b. If they agree to participate, they will be sent an email that contains a link by which they can access an on-line survey. Their responses are confidential and the data will be used for research purposes only.
  - c. Their email address will be provided to the researcher so that they can be emailed the link to the survey and so the authenticity of their responses can be verified. Their name will never be requested so it will not be associated with their responses to the survey.
5. Thank the individual for participating.
6. Fill out the bottom of this form in order to receive credit.

**Research credit:**

1. In order to receive 1 research credit, you must complete and return this page.
2. You will receive 1 research credit for completing this page, but up to 4 total credits if you submit 6 participants who **all** complete the survey. For every 2 participants that complete it you will receive an additional credit. You are not required to submit all 6 email addresses if you do not wish to receive all 4 credits.

Your name: \_\_\_\_\_ Tech ID# \_\_\_\_\_

Professor's name: \_\_\_\_\_ Course and section # \_\_\_\_\_

Who have you recruited to participate in the survey? (All info is **required** so that a log-in for the online survey can be emailed to the participant and so that the authenticity of responses may be verified if necessary).

	<b>Email Address</b>	<b>Organization</b>
Participant #1		
Participant #2		
Participant #3		
Participant #4		
Participant #5		
Participant #6		

## APPENDIX B

Dear Participant:

You are invited to participate in a research study regarding recovery from work stress. This study is being conducted by Dr. Lisa Perez, graduate student Jason Jaber in the Industrial/Organizational Psychology program at Minnesota State University, Mankato.

We have asked Minnesota State University, Mankato undergraduate students to assist us in data collection. By completing and submitting the online questionnaire, you are providing us with valuable research data. Furthermore, the student will gain experience in conducting psychological research and gain additional credit in their coursework. The student will receive credit for submitting participant email addresses to the researchers and additional credits for completed questionnaires.

**If you wish to participate in this study, please take 15-30 minutes to complete the questionnaire using the link provided.**

To receive credit, the student has provided us with your valid email address so that we could send you an internet link to the questionnaire. Because your questionnaire will be submitted online on a secure server using only the randomly assigned internet link provided, we will not be able to link your name to your actual survey responses.

Data from the surveys will be used for research purposes only. Your participation in this study is completely voluntary. If you feel uncomfortable with a question, feel free to skip it. If you choose not to participate, simply delete this email. If you begin the survey, and decide you no longer wish to participate, simply exit the survey and close your browser window.

Individuals with disabilities may obtain the questionnaire in an alternative format on request. If you have questions regarding this study, please contact Jason Jaber at the number listed below or contact Dr. Lisa Perez at (507) 389-5696.

Thank you in advance for your participation.

Jason N. Jaber  
I/O Psychology Masters Candidate  
Minnesota State University, Mankato  
jason.jaber@mnsu.edu  
902.251.3322

## APPENDIX C

**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:

How many children under age 5 do you have living in your home?

How many children between the ages of 5 and 18 do you have living in your home?

Are you paid Hourly or Salary?

Hourly

Salary

Please indicate your gender:

Female

Male

What is your marital status?

Single, never married

Married

Divorced/separated

Widowed

Unmarried, living with significant other

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

Do you wish to participate in this study by completing this online survey?

Answering "No" does not disqualify the student who referred you from receiving credit.

Yes

No

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

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

**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

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.

**Worker Control Scale:**

How often are the following statements true?

Very | Little Little | A Moderate Amount | Much | Very Much

How much control do you have over the scheduling and duration of your breaks?

How much control do you have over when you come to work and leave?

How much can you control the physical conditions of your work station (lighting, temperature)?

How much control do you have over when you take vacation or days off?

How much control do you have over the amount of resources (tools, materials) you get?

How much influence do you have over the policies and procedures in your work unit?

How much can you control when and how much you interact with others at work?

How much control do you have over the amount you earn at your job?

How much control do you have over how your work is evaluated?

**Perceived Stress Scale:**

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

Never | Almost Never | Sometimes | Fairly Often | Very Often

...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?

**Need for Recovery:**

How often are the following statements true?

Never | Sometimes | Frequently | Always

I find it difficult to relax at the end of a working day.

By the end of the working day, I feel really worn out.

Because of my job, at the end of the working day I feel rather exhausted.

After an evening meal, I generally feel in good shape.

In general, I only start to feel relaxed on the second non-working day.

I find it difficult to concentrate in my free time after work.

I cannot really show any interest in other people when I have just come home.

Generally, I need more than an hour before I feel completely recuperated after work.

When I get home from work, I need to be left in peace for a while.

Often, after a day's work I feel so tired that I cannot get involved in other activities.

A feeling of tiredness prevents me from doing my work as well as I normally would during the last part of the working day.