

RUNNING TO WORK:
MARATHON TRAINING, REPLENISHMENT, AND WORKER WELL-BEING

A Dissertation
Presented to
The Faculty of the Department
of Psychology
University of Houston

In Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

By
Eleanor Waite
May, 2012

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ABSTRACT

Examining the impact of off-job activities on employee well-being offers a new perspective on the determinants of employee health and satisfaction. Applying conservation of resources theory (COR) and self-determination theory (SDT), I suggested that certain elements of leisure activities promote resources, thereby increasing feelings of replenishment. In turn, replenishment (i.e., a gain in resources) increases well-being. Using a sample of individuals training for a marathon / half marathon, I examined how certain elements of an employee's marathon training regime can lead to replenishment and increases in employee health outcomes. Specifically, I addressed how a training regime that includes group support, clear goals, self-affirmation, and psychological detachment is more likely to result in replenishment. I examined the extent to which an organization supports an employee's marathon endeavor moderates the relationship between training characteristics and replenishment. Additionally, I tested replenishment as a mediator of the training characteristic-well-being relationship. The hierarchical moderated multiple regression results highlighted the importance of self-affirmation in off-job activities. Further, results suggested that off-job activities have the strongest implication for increasing employee engagement. The results showed inconsistencies with previous research and theory regarding the role of psychological detachment and replenishment in the relationship between off-job activities and well-being. Overall, this research answered several important questions regarding the process through which leisure activities increase a sense of recovery in employees and positively influence health at work.

Keywords: recovery, well-being, conservation of resources, self-determination theory

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CHAPTER 1

INTRODUCTION

Running to Work: Marathon Training, Replenishment and Worker Well-Being
“You triumph over the adversity-that is what the marathon is all about. And therefore you know there isn’t anything in life you can’t triumph over after that.” --*Katherine Switzer, First woman to complete the Boston Marathon as a numbered entry (1967).*

Understanding the antecedents of employee health is important considering the negative consequences associated with a stressed, unhealthy workforce. Stress in the workplace contributes to decreased worker well-being and performance (e.g., Gilboa, Shirom, Fried, & Cooper, 2008), increased withdrawal behaviors (Chen & Spector, 1992), and ultimately, hinders organizational effectiveness and productivity. The field of occupational health psychology (OHP) focuses primarily on the negative consequences of job stressors on employee health (e.g., Hackman & Oldham, 1980; Karasek, 1979) in order to shed light on the interventions organizations can take to prevent or minimize the detrimental effects of workplace stressors.

OHP scholars have recently broadened their work to include how off-job activities impact employee well-being (e.g., Fritz & Sonnentag, 2005; Sonnentag, 2001; Sonnentag & Jelden, 2009; Sonnentag & Natter, 2004; Westman & Eden, 1997). For example, Sonnentag (2005) called for an increase in research that examined employee well-being from an off-job perspective. The underlying premise for this research is the idea that mentally distancing oneself from work (i.e., psychological detachment; Sonnentag & Krueger, 2006) is important for recovery and employee well-being, thereby enhancing performance. This domain of research has expanded the view of employee health to include both work and leisure activities as predictive of employee well-being outcomes. As such, interest in the work-leisure balancing act has expanded

in order to increase knowledge regarding the compensatory effects of the work domain and off-job domain in predicting employee health and satisfaction.

The process of recovering from work involves the removal of workplace stressors and the opportunity to escape the demands of work. Exposure to daily job stressors heightens the likelihood for developing burnout and other symptoms associated with poor well-being (Demerouti, Bakker, & Butlers, 2004). In order to combat the poor health outcomes associated with the continuous exposure to job stressors, it is important to unwind from work (de Croon, Sluiter, Blonk, Broersen, & Frings-Dresen, 2004; Hobfoll & Shirom, 2001; Sonnentag, 2003). For example, high job demands typically increase an individual's need for recovery (Sluiter, van der Beek, & Frings-Dresen, 1999), conceptualized as a "precursor to prolonged fatigue or psychological distress" (Jansen, Kant, & van den Brandt, 2002, p. 324). Effectively engaging in certain off-job activities presents individuals with an opportunity to satisfy the need for recovery, resulting in positive health outcomes for employees (Sonnentag & Zijlstra, 2006).

Within this area of literature, studies have investigated how time spent in various domains after work impacts the need for recovery and worker well-being (e.g., Sonnentag & Zijlstra, 2006). Time spent outside of work recovering from workplace stressors can increase job engagement (i.e., feeling energized at work; Sonnentag, 2003) and well-being (Westman & Etzion, 2001). A lack of recovery is often used to explain why job stressors negatively impact employee health (e.g., Meijman & Mulder, 1998; Sluiter et al., 1999). Of the various leisure activities, physical activities appear to have the most benefits in terms of feeling invigorated for going back to work. Overall, individuals who engage in physical activity outside of work report lower levels of fatigue and depression (Rook & Zijlstra, 2007; Sonnentag & Natter, 2004), a

decreased need for recovery (Sonnentag & Jelden, 2009; Sonnentag & Zijlstra, 2006), and increased vigor (Sonnentag & Natter, 2004).

Although evidence supports the proposition that off-job activities, such as the engagement in physical activity, enhance the recovery process, relatively little is known about the underlying psychological process that leads to recovery. Furthermore, no study of which I am aware has investigated the specific elements of leisure activities that facilitate the feeling of recovery, and in turn, increase engagement, satisfaction, and health. With the current study, I aimed to extend the recovery experience literature by investigating the proposition that resources gained during leisure time experiences account for increases in employee well-being at work. Specifically, I investigated how off-job experiences impact employee health and satisfaction by examining how marathon / half marathon training during leisure time can replenish individuals by providing them with resources and fulfilling their psychological needs.

Shedding light on the mechanisms related to feeling recovered from job stressors has important implications for individuals and organizations. Recovering from work by engaging in appropriate off-job activities produces beneficial psychological experiences relevant for individuals' well-being, job performance, and recovery from work stress (de Croon et al., 2004; Sonnentag & Fritz, 2007). From the individual's perspective, understanding the underlying psychological benefits and fulfillment that result from leisure time activities offers a guide for employees to seek out certain off-job activities that fulfill their needs. For the organization, encouraging workers to pursue certain leisure time activities may allow them to reap the benefits, such as favorable job attitudes (e.g., commitment; Harter & Blacksmith, 2010) and increased performance (Halbelsleben & Wheeler, 2008), linked with a healthy, engaged workforce. Overall, gaining knowledge of how off-job activities can impact work related outcomes (i.e.,

engagement, emotional exhaustion, and job satisfaction) motivate employees and employers to participate in appropriately structured leisure time activities.

The goal of the present study was to fill this gap by testing conservation of resources theory (COR; Hobfoll, 1989) to assess how elements of a specific leisure activity, marathon training, promote personal resources, thereby enhancing well-being outcomes. In testing COR, I apply self-determination theory (SDT; Ryan & Deci, 2000) and the theory of challenge stressors (Cavanaugh, Boswell, Roehling, & Boudreau, 2000) to explain the conditions under which marathon training promotes a gain in resources for employees. Specifically, I address how a training regime that includes social support, clear goals, personal significance and a chance to escape the demands of work (i.e., psychological detachment) is more likely to result in replenishment. In turn, I suggest that replenishment leads to increased job satisfaction and engagement and decreased emotional exhaustion for people at work. Additionally, I argue that replenishment is the mechanism through which training characteristics impact well-being outcomes. Lastly, I suggest that workplace support for exercise moderates the relationship between training characteristics and replenishment. This may be the first study to apply the theory of psychological needs (i.e., SDT) and challenge stressors to explain the psychological process of replenishment during leisure activities, thus impacting an individual's off-job recovery and well-being.

CHAPTER 2

JOB RECOVERY

Research on job recovery emphasizes the integral role of off-job activities and experiences in contributing to employee health outcomes. Stressors encountered at work continue to affect employees after work hours, making it difficult for them to mentally switch off (i.e., psychologically detach) from work-related duties. Recovery is conceptualized as the opposite of the strain process. During recovery, stressors are eliminated, and strain is reduced (Meijman & Mulder, 1998). Job recovery research is based on the idea that life outside of work influences one's feelings and behavior at work (Sonnentag, 2003). Thus, the activities in which people engage outside of the office can mitigate the negative consequences associated with continued rumination of workload after work hours (Sonnentag & Krueger, 2006).

Traditionally, this area of literature has grounded its predictions in the effort-recovery model (ERM; Meijman & Mulder, 1998). The model maintains that job demands require individuals to expend effort. Effort exerted during work drains individuals' resources and may cause strain reactions that impact the mood and performance of the worker (Zohar, 1999). Conversely, recovery, generally achieved during leisure time, halts the deterioration in well-being and performance that can occur as a response to extended exposure to stress (Meijman & Mulder, 1998). The temporary relief from job demands achieved during off-job time allows the body to recuperate and prevents long term health problems that are caused by excessive job strain. Specifically, researchers have repeatedly demonstrated that individuals who successfully unwind (i.e., psychologically detach) from workplace stressors during their leisure time experience better health, are more engaged, and have higher performance at work (e.g., Fritz & Sonnentag, 2005; Sluiter et al., 1999; Sonnentag, 2001, 2003).

In addition to ERM, COR theory offers theoretical insight into the recovery process. Hobfoll's COR theory (1989, 1998) provides a general model on stress and well-being and purports that individuals are motivated to maintain, protect, and build their personal resources. Resources may include anything that has particular importance to an individual, such as social support, desired objects, and personal characteristics. If resources are threatened or lost, or when investment of resources does not produce a subsequent gain in resources, an individual is likely to experience negative consequences in terms of their health and well-being. From a work perspective, COR suggests that strain responses occur as a consequence of the resources demanded from workers on the job. Unfavorable job characteristics have a negative impact on employee health. High job demands, such as time pressure, long working hours, work overload, and a lack of workplace support, can drain resources (Sluiter et al., 1999; Sonnentag & Frese, 2003; Zohar, 1999). This drain on resources makes it harder for individuals to unwind after work, negatively affects their well-being the following day, and increases their need for recovery (Sonnentag & Zijlstra, 2006). Satisfying the need for recovery may occur by engaging in activities that replenish lost resources outside of work (Hobfoll & Shirom, 2001; Sonnentag & Zijlstra, 2006). Therefore, successful recovery during leisure activities has positive implications for workers in terms of providing them with the resources they need to successfully face the demands of their work environment.

In order to have a replenishing side-effect, recovery activities are likely to result in increased positive affectivity, which may occur by refraining from tasks that deplete regulatory resources or by engaging in a desired behavior (Troughakos & Hideg, 2009). Generally speaking, the most robust finding in this area of research is that avoiding job-related activities results in psychological detachment from work, which increases well-being (Sonnentag, 2001; Sonnentag

& Zijlstra, 2006). For example, Fritz and Sonnentag (2005) studied how weekend experiences contribute to on-the-job productivity during the week. This study suggested that it is not the amount of time that predicts recovery, but the quality of the experiences and how the experiences spur recovery (i.e., meet the individuals' needs). Engaging in chores (e.g., running errands, cleaning, preparing for work) during off-job time is associated with negative emotions (Troughakos, Beal, Green, & Wiess, 2008). Therefore, focusing on (a) the type of activities that individuals participate in outside of the office and (b) the recovery experiences associated with these activities is important for increasing knowledge regarding the recovery process.

To address the first point, research has investigated the role of specific off-job activities in replenishing regulatory resources. Sonnentag and Zijlstra (2006) studied the impact of job demands and off-job activities on health outcomes. Time spent on leisure activities that required active engagement, such as physical activity, as opposed to passive engagement, such as watching television or taking a bath, stimulated recovery. Sonnentag and Natter (2004) analyzed the activities that flight attendants engage in during their off job time. Concurrent with previous research, time devoted to physical activities outside of work had beneficial effects on employee vigor in the evening, whereas time spent on work-related activities outside of work hours resulted in decreased levels of vigor in the evening. Sonnentag and Jelden (2007) reinforced the beneficial effects of engaging in sporting activities outside of work. Compared to social activities, or low effort activities (i.e., watching television), sporting activities during leisure time spurred on the recovery process and had a strong effect in enhancing well-being after a stressful day of work. Lastly, Rook and Zijlstra (2007) noted that low effort activities and social activities were not beneficial for recovery. Activities passive in nature may contribute to feelings of fatigue and lethargy (Iso-Ahola, 1997). Thus, although engaging in rigorous activities, like sports

and exercise, during leisure time requires effort, these types of activities have the most replenishing side effects and recovery enhancing properties (Rook & Zijlstra, 2007; Sonnentag & Jelden, 2007; Sonnentag & Natter, 2004; Sonnentag & Zijlstra, 2006).

To address the second point, a couple of studies have investigated recovery experiences during nonwork time (i.e., Demerouti, Bakker, Sonnentag, & Fullager, 2012; Sonnentag & Natter, 2004). Recovery experiences are conceptualized as the individual's perception that the activity pursued during off-job time contributes to his or her resources. Asking directly about recovery experiences assesses an individual's state of feeling recovered (Binnewies, Sonnentag, & Mojza, 2009) and measures the recovery effect. Sonnentag and Natter (2004) found that recovery experiences were significant predictors of fatigue and exhaustion at bed time, such that individuals who felt more recovered during their off-job activities reported less fatigue and exhaustion in the evening. Demerouti and colleagues (2012) found that recovery at home increased reports of vigor and decreased reports of exhaustion at the end of the day if employees psychologically detached from work during off-job time. Together, these two studies highlight the importance of feeling recovered and the impact that the perception of replenishment has on employee well-being outcomes.

Both recovery experiences and recovery activities are important for feeling recovered and invigorated for work. In an attempt to answer why certain activities provide more replenishing experiences than other activities, Sonnentag and Fritz (2007) explored the underlying psychological experiences associated with job recovery. In their investigation of how people recuperate from work during leisure time, Sonnentag and Fritz (2007) identified four core psychological aspects of beneficial recovery activities: psychological detachment from work, mastery experiences, control, and relaxation. First, psychological detachment is conceptualized

as disengaging oneself mentally from work (Sonnentag & Bayer, 2005). In this state, work demands can no longer take a toll on the functional systems called upon during work because they are “switched-off” during leisure time. Second, mastery experiences include activities “that distract from the job by providing challenging experiences and learning opportunities in other domains” (Sonnentag & Fritz, 2007, p. 206). Third, control during leisure time refers to the extent to which an individual has the ability to dictate their leisure time activities. The control that individuals’ experience during leisure time may act as resource by enhancing competency and efficacy. Fourth, relaxation is defined as a state of reduced activation and increased positive affect that allows the body to return to its pre-stressor state (Stone, Kennedy-Moore, & Neale, 1995).

Although the work by Sonnentag and Fritz (2007) has clearly indicated the recovery facilitating properties of off-job activities, studies exploring the reasons why these activities enhance recovery remain limited. The benefits of unwinding from work are obvious, but the mechanisms through which leisure time activities provoke the recovery process are less understood. Furthermore, Sonnentag and Fritz (2007) noted that there are still several other potentially unstudied recovery experiences. No study of which I am aware has investigated how these core psychological aspects are manifested in a specific off-job activity. For example, distancing oneself from work demands during off-job time (i.e., psychological detachment) is beneficial, but what is the process that links detachment to well-being? Navigating how leisure activities are related to successful recovery experiences may shed light on the interplay between one’s work context and leisure time activity in predicting employee well-being outcomes.

CHAPTER 3

MARATHON TRAINING

In the field of OHP, physical activity is generally researched for its stress-reducing benefits. Additionally, organizations are particularly interested in the cost savings that a healthy workforce can have for their businesses. The cost of occupational stress is staggering due to its impact on turnover, health costs, and decreased productivity (Michie & Williams, 2003). The benefits of physical activity are clear; even state legislation is involved in promoting health and wellness through physical activity programs. For example, in 2005, Washington implemented a program of incentives that increased physical activity and health decision making among state employees (O'Donnell, 2005).

In comparison to other recovery activities, preliminary evidence suggests that sport-related pursuits have particularly powerful benefits in terms of satisfying the need for recovery after work (Rook & Zijlstra, 2007; Sonnentag, 2001; Sonnentag & Bayer, 2005; Sonnentag & Jelden, 2006; Sonnentag & Natter, 2004). Leisure-time physical activity is negatively associated with job strain and job demands and positively associated with job control (Yang et al., 2010). It is widely accepted that physical activity is beneficial for employees. A plethora of research substantiates the claims that active employees experience benefits at work that improve their performance and well-being (Forcier et al., 2006; Tian & Wang 2005; van Rhenen, Blonk, van der Klink, van Dijk, & Schaufeli, 2005).

In terms of recovery experiences, physical activity is thought to be particularly beneficial because it pulls from a different set of resources than are required in most jobs (Sonnentag & Natter, 2004). This concept fits within the framework of ERM and COR theory. During physical activity, the functional systems that are used during work are allowed to rest, while resources

used for physical activities are emphasized. Awakened a different functional system allows the resources required on the job to replenish. Even when jobs may be physically demanding, such as the work of flight attendants, physical activity is still an effective way to enhance employee well-being. Sonnentag and Natter (2004) proposed that this may be the case because the physical demands of exercise differ greatly from the physical demands associated with work.

Furthermore, physical activities are an effective distraction from job-related demands (Yeung, 1996) and do not increase fatigue (Sonnentag & Bayer, 2005; Sonnentag & Natter, 2004).

Because of the recovery benefits associated with physical activity, I studied job recovery in a sample of individuals training for a marathon or half marathon during leisure time. The marathon is a popular event for which to train; it is an impressive feat and provides individuals with a challenging quest (Galloway, 2001). In 2009, 40 new marathons were scheduled in the United States. A total of 468,000 people competed in marathons on U.S. soil, and 20,000 of these individuals were embarking on their first marathon ever. Furthermore, the half marathon distance is the fastest-growing road race distance. There were over 1.1 million half marathon finishers in 2009. Because of the popularity and growth of marathon running, many of the major marathons have had to cap their entry, set qualifying standards, or require individuals to enter a lottery system the year prior to the marathon to try and get a spot on the starting line. Today, the marathon is no longer an elite event for sleek professionals—it is a challenging event that is approached by the everyday working person for a plethora of mental and physical benefits (Galloway, 2001). For example, marathon training may serve as a route for self-discovery (Boudreau & Giorgi, 2010), personal achievement (Ogles, Masters, & Richardson, 2003; Ziegler, 1991), or a way to increase mental health and physical fitness (Noakes, 2003).

Focusing on a specific leisure time activity (i.e., marathon training) positions me to thoroughly investigate the relationship between the characteristics of the recovery activity (i.e., marathon training) and replenishment and well-being. Although all participants were training for a marathon, their reasons for training and the benefits that they reap from the training experience are likely influenced by the process with which they approached training.

The Marathon as a Challenge Stressor

Researchers have conceptualized stressors along two dimensions: challenge stressors and hindrance stressors (Cavanaugh et al., 2000). Challenge stressors are stressors under the control of the employee that have the capability to promote growth and opportunities for higher achievements, whereas hindrance stressors are viewed as stressors that thwart personal development and limit employees' potential at work (Podsakoff, LePine, & LePine, 2007). These two types of stressors have differential effects on employee job attitudes and performance. For example, challenge stressors include high levels of responsibility and workload and are positively related to job satisfaction, loyalty, and task performance (Boswell, Olson-Buchanan, & LePine, 2004; Cavanaugh et al., 2000). Conversely, hindrance stressors, such as organizational politics or inadequate job supplies, constrain personal development, hurt performance, and increase turnover intentions (Boswell et al., 2004; LePine, Podsakoff, & LePine, 2005).

Although the distinction between challenge stressors and hindrance stressors has been confined to the work environment, it is likely that off-job activities follow a similar categorization. For example, as illustrated in the recovery literature, organizing taxes, house cleaning, and running errands are unlikely to have a replenishing effect, whereas meditation, exercising, or volunteering replenish resources (Sonnentag & Natter, 2004; Trougakos & Hideg, 2009). Stated briefly, involvement in certain off-job activities likely has a positive effect on

health, well-being, and life satisfaction, whereas other off-job activities are more likely to negatively impact life satisfaction and fatigue.

According to Selye (1978), people enjoy, and sometimes even experience euphoria, when engaging in challenging and stressful tasks. Along these same lines, organizational psychologists have noted the benefits associated with challenging jobs (i.e., Cavanaugh et al., 2000; McCall, Lombardo, & Morrison, 1988; McCauley, Ruderman, Ohlott, & Morrow, 1994). McCall and colleagues (1988) found that job demands associated with challenge stressors were highly sought after, and that employees embraced the discomfort associated with such challenges. Additionally, research suggests that challenging jobs are linked to higher employee satisfaction, involvement, and commitment (Campion & McClelland, 1991; Podsakoff, et al., 2007).

Outside of the organizational psychology literature, Glasser (1976) introduced the concept of positive addiction. A positive addiction is defined as engagement in an activity that enhances one's well-being and increases mental strength. As his prototypical examples of activities, Glasser discussed the positive effects of running and meditation. According to the theory of positive addiction, engagement in "positive" activities are at the discretion of the participant, promote strength in the individual, and are considered a positive tool, especially when dealing with adversity. Alongside its physiological health benefits, running is touted to promote psychological well-being. From a resource perspective, it may seem inconsistent to claim that engaging in vigorous exercise that is physically and mentally draining can have replenishing effects. However, the fact that marathons have a lottery system to enter and that the engagement in the sport is increasing signals that there is something attractive about the pursuit. Additionally, the marathon has the potential to offer people valuable experiences that they may be missing at work (i.e., challenging goals, control, support, and health benefits).

Combing the work by Selye (1978), Glasser (1976) and the literature suggesting the beneficial effects of challenge stressors in the work environment, it is likely that tasks outside of work that are characterized as challenging have similar benefits. The notion that challenge stressors are important for recovery reconciles previous research by Rook and Zijlstra (2006), which found that low effort activities and social activities increase fatigue, whereas physical activities decrease fatigue. Troukagos, Hideg, and Cheng (2011) also noted negative health consequences (i.e., fatigue) associated with the engagement in social activities during work breaks. Social activities do not present an invigorating challenge to employees, whereas physical activities are likely to present such challenges.

Three characteristics identify the marathon as a challenge stressor. First, a marathon is a high workload leisure activity and requires responsibility on behalf of the participant in order to complete (Boudreau & Giorgi, 2010), both of which are characteristics of motivating challenge stressors. Second, a marathon is a challenging endeavor, but is likely pursued because of the personal growth and future gains that may be attained through the training and racing process. Third, signing up for a marathon is a matter of personal choice, signifying that it is at the discretion of the individual to attempt the challenge of completing 26.2 miles. Together, these points illustrate how engaging in what may seem like an exhausting, time-consuming, and over-ambitious leisure activity can actually energize individuals and increase satisfaction and well-being.

CHAPTER 4

SELF-DETERMINATION THEORY

Self-determination theory includes the “investigation of people’s inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration, as well as for the conditions that foster those positive processes” (Ryan & Deci, 2000, p. 68). The theory serves as a guide for researchers in identifying conditions that allow human potential to flourish in terms of their development, performance, and well-being. Individuals are affected by the context of their environment, which may impact their experiences and well-being. Certain environments provide individuals with their basic needs and increase positive affectivity and other personal resources. Research has identified three innate psychological needs, namely, competence (i.e., the need to effectively handle the demands of one’s environment), autonomy (i.e., the need for control over one’s behavior), and relatedness (i.e., the need for growth and integrated relationships), which when satisfied leads to increased work engagement (Deci et al., 2001), well-being (Sheldon, Ryan, & Reis, 1996), positive affect (Sheldon, Elliot, Kim, & Kasser, 2001), and vitality (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). When these needs are disregarded, individuals are plagued by ill-health and passivity (Ryan & Deci, 2000). Stated briefly, on one hand, fulfillment of these psychological needs facilitates a healthier life. On the other hand, an environment that obstructs an individuals’ need for competence, autonomy or relatedness results in poor well-being.

A few researchers (i.e., Greguras & Diefendorff, 2009; Meyer, Becker, & Vandenberghe, 2004; Sheldon et al., 2003) have argued for the incorporation of SDT in organizational research, as it may provide more insight regarding employee well-being and the interaction between an employee and their work environment. According to Ryan and Deci (2000), different social

environments may successfully satisfy certain psychological needs and enhance personal growth and intrinsic motivation. However, it is unlikely that a complete set of individuals' needs are met in a single environment (i.e., work). For example, the work environment may allow individuals to satisfy their need for competence by performing meaningful work, but they may lack the satisfaction for relatedness in the same environment because of the independent nature of their work. The three psychological needs are proposed to be universal (Ryan & Deci, 2000). However, the way in which individuals experience satisfaction likely differs (Greguras & Diefendorff, 2009). Therefore, although some psychological needs may be met at work, there are still other needs that may remain unsatisfied. Accordingly, it may be important for workers to engage in activities outside of work that satisfy their needs that remain unmet after work. When these needs are satisfied, the positive effects associated with off-job activities are likely enhanced.

Another key element of SDT is that individual variance in psychological need satisfaction is the key determinant in predicting individual well-being. A basic premise of this research is that the individuals who engage in leisure time activities that fulfill their basic needs and are intrinsically motivating experience increased well-being (Ryan & Deci, 2000). Fulfilling psychological needs is of primary importance for health and satisfaction. Thus, much of the SDT research is interested in factors that enhance the fulfillment of these psychological needs (Deci & Ryan, 2000; Greguras & Diefendorff, 2009). One unexamined area of this research is how leisure time activities fulfill individual needs. Increasing knowledge of the characteristics of activities that maximize the recovery process and increase resources may shed light on the important role of the off-job domain predicting employee well-being and satisfaction.

Considering the literature related to SDT and challenge stressors, it is likely that leisure activities that are challenging and fulfill the needs of relatedness, autonomy, and competence may serve as a supplement to workers by providing them with resources. Specifically, individuals who construct their training environment in a way that allows them to fulfill their psychological needs are likely to experience more replenishment (i.e., increase in resources) from training.

First, in the case of relatedness, training in an environment that offers support is likely to increase feelings of replenishment. For example, marathon training may offer an employee an environment where individuals can train with each other and engage in mutual goals with peers (Gill, Williams, Dowd, & Beaudoin, 1996; Noakes, 2003). According to the basic need of relatedness, individuals desire support and a sense of connectedness from others (Deci & Ryan, 2000). When this is lacking at work, individuals may look to other domains to form relationships and gain support. Support is plentiful in the marathon training environment, especially when individuals meet with fellow marathoners for training (Gill et al., 1996). Thus, support in training is likely to influence the resources gained during training and impact reports of replenishment.

Belonging to a formal training group is likely to result in increases in support from training partners and replenishment. Individuals who belong to an organized training group are working together to achieve similar goals. For example, training groups organize their members based on the race for which they are training, their goal pace and their fitness. Therefore, people who are part of an organized training group are likely to have support for their marathon pursuit. Furthermore, these individuals are likely to have to use less regulation to attend to their marathon goals because the environment (i.e., training group) supports their training goals.

Hypothesis 1: Training group participation is positively related to replenishment.

Second, marathon training may represent an opportunity for people to take control over challenging tasks and express their competence over a domain. According to the theory of self-affirmation, which is closely linked to the basic need of competence, individuals are motivated to protect their perceived self-worth and integrity (Sherman & Cohen, 2002; Steele, 1988). Self-affirmation research focuses on the beneficial effects of affirming one's core values or positive attributes following an ego threat (i.e., an event that has negative implications for the self; Baumeister, Heatherton, & Tice, 1993). Self-affirmations include "reflecting on important aspects of one's life irrelevant to the threat, or engaging in an activity that makes salient important values unconnected to the threatening event" (Sherman & Cohen, 2006, p. 8). Self-affirmation helps protect individuals from negative feedback by strengthening the self-concept. Previous qualitative research investigating reasons why individuals pursue the marathon has cited marathon running as a chance to enhance one's personal insight regarding their abilities (Boudreau & Giorgi, 2010), increase confidence, and create an awareness of qualities that individuals have felt they lacked (Summers, Machin, & Sargent, 1983). People who use running as a tool that allows them to focus on their positive attributes and for whom it serves as an activity with personal importance are more likely to gain resources from the activity.

Hypothesis 2: Self-affirmations in running are positively related to replenishment.

Third, marathon training may be way for employees to psychologically detach from work. Additionally, the basic need of autonomy may be related to psychological detachment. This need for autonomy may be conceptualized as an opportunity to escape the overload of the job and create psychological distance from the work environment. Thinking freely and loosening the ties of one's job demands (i.e., psychologically detaching) increases feelings of autonomy. For example, psychological detachment allows the individual to act on free will instead of in

accordance with the organization because the individual has switched-off thoughts regarding the demands of the organization. In line with Sonnentag, Binnewies, and Mojza (2010), psychological detachment from work is a strong predictor of well-being. Psychological detachment implies that an individual is mentally disengaged from work and has abandoned workplace duties for the time being (Sonnentag & Bayer, 2005). However, in previous studies (e.g., Sonnentag et al., 2010, Sonnentag & Bayer, 2005; Sonnentag & Fritz. 2007) psychological detachment has been linked to job stressors and worker well-being, often viewed as a buffer between stressors and strains. Although researchers have suggested that psychological detachment increases engagement and decreases emotional exhaustion because of the resources gained during detachment, no study of which I am aware has tested whether or not there is a relationship between detachment from work and perceptions of replenishment. In other words, even though previous research results suggest that a lack of detachment drains energy (e.g., Sonnentag et al., 2010), there appears to have been no test of this assumption. Accordingly, I propose:

Hypothesis 3: Psychological detachment from work during training is positively related to replenishment.

CHAPTER 5

GOAL-SETTING THEORY

Goal-setting theory (Locke & Latham, 1990) highlights the importance of setting personal goals in order to successfully regulate behavior to achieve goals. According to Locke and Latham, setting specific, difficult goals and having the self-efficacy to attain these goals enhances task performance. Goal-setting theory posits that the goal-performance relationship is strongest when the individual is committed to the goal. Specifically, conscious goals affect performance by directing attention to the task. In order to have their intended effect, goals must contain specificity and clarity (Locke & Latham, 1990). Successfully directing effort toward fulfilling a task requires clearly outlined goals. Therefore, goal clarity, defined as the extent to which the individual is prepared for the race and has specific marathon goals, represents an important component of goal-setting theory. Furthermore, Latham and Locke (2006) argued that goal-setting not only has a positive impact on task performance but also on subjective well-being. Overall, the importance of setting clear goals for increasing task motivation and performance in the workplace has received abundant attention.

Considering the conceptualization of the marathon as a challenge stressor, having clear goals is likely important if one expects to experience replenishing effects from training. This line of thinking is concurrent with Sonnentag and Fritz's (2007) definition of mastery experiences, which relates to the idea that challenging experiences in off-job domains increase recovery. Research is lacking, however, regarding the importance of off-job goals. One study has suggested that routines play a role in predicting beneficial outcomes from the participation in off-job sporting activities (Sonnentag & Jelden, 2009). Routines for off-job activities refer to the tendency for individuals to pursue their activity at a specific time with a specific training plan

outlined. For example, individuals who have a routine training program have planned a time, day, and workout to complete either before or after work each day. Expanding the notion of routines to include goal clarity may help uncover an important element in successful recovery from work during leisure activities.

Individuals with clear goals related to their leisure activities may have an outline for accomplishing their off-job routine, and this goal specificity may help structure their approach to the off-job activity. Having goals outside of work is likely to have similar benefits as having goals at work. Goal-setting is an important determinant for fulfillment and enjoyment of tasks. Achievement goals have been linked to both performance (e.g., Dweck & Leggett, 1988; Elliot & Church, 1997) and motivation (Elliot & Harackiewicz, 1996). Therefore, goal-setting, conceptualized as having clear goals, is likely to be related to training-work spillover, whereas a lack of clear and consistent goals when approaching the marathon is likely to be related to training-work conflict. Accordingly, I propose:

Hypothesis 4: Goal clarity is positively related to replenishment.

In addition to goal-setting, goal attainment may shed light on the important role that goals play in replenishing employees. A plethora of evidence supports the perspective that goals can increase an employee's performance (Locke & Latham, 1990, 2002). First, goals regulate individual behavior and direct attention toward goal-relevant activities. Second, goal commitment motivates employees to persist at the goal until it is achieved (Latham, 2007). Although these two points illustrate the importance of goal-oriented behavior on achieving a desired performance, neither point addresses how achieving the goal at hand may impact the resources available to the individual. When people reach their goals, they experience positive affect (Sirgy, 2006). Additionally, the feelings of accomplishment that people experience after

goal attainment is motivating, and encourages them to set and pursue new goals (McGregor & Little, 1998). The increase in positive affect and motivation after goal attainment may indicate that goal attainment acts a resource. Therefore, in addition to goal-setting, goal attainment may serve as an important antecedent to replenishment. Specifically, individuals who achieve their predicted time goal for the marathon / half marathon (i.e., run the overall time that they have aimed to run) are likely to have increased positive affect, and thus gain more resources from the activity. Hence, I argue that one mechanism that may increase feelings of replenishment in employees is goal attainment.

Hypothesis 5: The proportion of difference between marathon goal time and actual time (i.e., race result) is related to replenishment, such that the extent to which an individual runs faster (slower) than his/her goal time is positively (negatively) related to replenishment.

CHAPTER 6

WORKPLACE SUPPORT FOR EXERCISE

Person-organization (P-O) refers to the compatibility between an employee and his or her organization. There are benefits associated with employees who share similar characteristics with their organization (Kristof, 1996). A work environment that supports an individual's quest to complete a marathon or half marathon is likely to influence the extent to which training influences replenishment. Specifically, if exercise is valued within the workplace and employees are encouraged to maintain physically fit, then engaging in marathon training likely leads to increased replenishment for these individuals. The alignment of values that occurs due to high P-O fit is likely to create an environment that is supportive of an employee's marathon training because organizational members share a similar perspective regarding the significance of pursuing the marathon. In order for recovery activities to have maximum replenishment, it is important that the organization supports the employee and that the employee has positive interactions with coworkers regarding the recovery activity. Furthermore, support is a valuable resource for employees (Hobfoll, 1988). Support at work typically enriches employee resources for performing work relevant tasks (e.g., Hochwarter, Witt, Treadway, & Ferris, 2006). Therefore, having support from the organization for pursuing the marathon / half marathon is likely to increase the recovery experiences during training.

In line with this conceptualization, prior research has highlighted the moderating role of support in enhancing the positive effects between trust and helping behavior at work (Choi, 2006), as well as between social skill and job performance (Hochwarter et al., 2006). Applying this same logic to activities relevant to worker well-being outside of the office, it is likely that when support for marathon training is high and employee interactions regarding the marathon

reflect this, support may provide additional socioemotional resources for employees (Hochwarter et al., 2006; Wallace, Edwards, Arnold, Frazier, & Finch, 2009). The increase in socioemotional resources received from the supportive nature of the work environment regarding the respite activity likely increases employee perceptions of replenishment. However, if the environment in which an individual works is not supportive of his/her marathon training, then this could lessen the positive effects of the leisure activity. For example, it may make the employee feel even more drained at work by highlighting the lack of support and dissimilarity in values between him/herself and the workplace.

Hypothesis 6a: Workplace support for exercise moderates the relationship between training support and replenishment. Specifically, high (low) workplace support for exercise strengthens (weakens) the positive relationship between training support and replenishment.

Hypothesis 6b: Workplace support for exercise moderates the relationship between goal clarity and replenishment. Specifically, high (low) workplace support for exercise strengthens (weakens) the positive relationship between goal clarity and replenishment.

Hypothesis 6c: Workplace support for exercise moderates the relationship between self-affirmations in running and replenishment. Specifically, high (low) workplace support for exercise strengthens (weakens) the positive relationship between self-affirmations in running and replenishment.

Hypothesis 6d: Workplace support for exercise moderates the relationship between psychological detachment and replenishment. Specifically, high (low) workplace support for exercise strengthens (weakens) the positive relationship between psychological detachment and replenishment.

CHAPTER 7

REPLENISHMENT, WELL-BEING, AND THE MARATHON

The majority of recovery research has focused on the deleterious effects of job stressors and has noted the need to recover from such stressors. What remains unknown, however, is the mental process that leads to recovery during off-job time. The psychological perception of recovery and the sense of re-invigoration that occurs during respite likely help performance on the job. Although previous research pronounces that it is the gain in resources during leisure activities that increase employee well-being, research with which I am familiar has not directly asked participants about the replenishing effects of their leisure activity. To test the COR mechanism, I examined the link between replenishment and three well-being indicators: engagement, emotional exhaustion, and job satisfaction.

Integrating the literature on resource replenishment and SDT, I argue that engaging in activities that compensate for the resource loss or that help workers overcome the stressors encountered on-the-job are likely to have the most replenishing consequences, which in turn likely increases well-being. Therefore, in order to test the theoretical basis of the recovery literature, I propose that replenishment increases engagement and job satisfaction and decreases emotional exhaustion.

Hypothesis 7a: Replenishment is positively related to engagement.

Hypothesis 7b: Replenishment is positively related to job satisfaction

Hypothesis 7c: Replenishment is negatively related to emotional exhaustion.

COR is a useful theoretical framework for understanding how training characteristics (i.e., psychological detachment, self-affirmation, support, and clear goals) relate to employee health outcomes. Building on the replenishment research, which demonstrates the beneficial

effects of resources gained during respite, I argue that perceived replenishment (i.e., feeling recovered from work) plays a critical role in explaining well-being at work. For example, feeling recovered as a consequence of engagement in a particular leisure time activity likely increases energy, which can impact health at work. Overall, COR purports that it is the increase in resources attained during off-job activities that lead to increases in engagement and job satisfaction and decreases in emotional exhaustion. Thus, I propose that replenishment acts as the mediating mechanism between leisure time experiences and well-being. In other words, employees with training support, goals, self-affirmations in running, and psychological detachment during training will report higher levels of engagement and job satisfaction and lower levels of emotional exhaustion due to their perception of replenishment during marathon training. Therefore, consistent with COR theory, I propose:

Hypothesis 8a: Replenishment mediates the relationship between training support and well-being, such that training support is positively related to replenishment, which increases engagement and satisfaction and decreases emotional exhaustion.

Hypothesis 8b: Replenishment mediates the relationship between self-affirmations in running and well-being, such that self-affirmations in running are positively related to replenishment, which increases engagement and satisfaction and decreases emotional exhaustion.

Hypothesis 8c: Replenishment mediates the relationship between psychological detachment and well-being, such that psychological detachment is positively related to replenishment, which increases engagement and satisfaction and decreases emotional exhaustion.

Hypothesis 8d: Replenishment mediates the relationship between goal clarity and well-being, such that goal clarity is positively related to replenishment which increases engagement and satisfaction and decreases emotional exhaustion.

Controlling for Personality

Literature has highlighted the important role of personality in influencing work-related attitudes. Two personality traits that have proved especially powerful in predicting work behavior are conscientiousness and neuroticism. According to COR theory (Hobfoll, 1989), personality can act as resources by influencing how employees manage their resources (Hobfoll & Shirom, 2001). Previous research has examined conscientiousness as a resource-providing characteristic and neuroticism as a resource-draining characteristic (Halbesleben, Harvey, & Bolino, 2009; Perry, Witt, Penney, & Atwater, 2010). Conscientiousness is the best personality variable for predicting job performance (Barrick, Mount, & Judge, 2001) and is characterized by employees who are diligent, organized, and driven to achieve. Neuroticism is linked with undesirable job outcomes, such as emotional exhaustion (Wright & Cropanzano, 1998) and decreased performance motivation (Judge & Ilies, 2002), and is characterized by employees who are more susceptible to negative emotional states, such as anxiety and anger (Costa & McCrae, 1992). COR theory purports that the characteristics of conscientious and neurotic employees are likely to have impactful relationships with workplace behavior (Hobfoll & Shirom, 2001). Therefore, in order to control for these relationships, I included employee conscientiousness and neuroticism as control variables.

CHAPTER 8

METHOD

Participants and Procedures

Information was collected through a survey during the week leading up to the marathon. Participants were considered eligible to participate in the survey if they met four criteria: they (a) worked a minimum of 20 hours a week (b) were at least 18 years or older (c) were participating in an upcoming marathon or half marathon and (d) had a race bib number for the upcoming marathon or half marathon. These criteria ensured that all participants had experience in training for the marathon while balancing the demands of work.

A total of 218 participants completed the survey. Of the 218 participants, 128 were competing in a half marathon and 90 were competing in a full marathon. Eighty-four participants were involved in an organized training group, and the majority of participants were female (n=127) and married (n=141). The average age of the participants was 37.

The survey was completed online or in pen and paper. For the pen and paper method, participants were recruited at marathon exposition events. Race participants must pick-up race-day information, including their bib number, one week to one day prior to the marathon. During the packet pickup, I approached individuals and asked them to participate in a survey regarding the balancing act of marathon training and working. Participants received a survey that took approximately five minutes to complete. Upon completion of the survey, they returned it to me and I thanked them for their time.

For the online survey, participants who had their race bib number accessed the survey via an online data collection site, surveymonkey.com. Participants were contacted through race websites, training blogs, and information displayed by race coordinators. In order to complete the

survey, participants were informed that they must possess a race bib number for their upcoming race. This assured that the participant was signed up to complete the marathon or half marathon and allowed the researcher to search the race results for the participants' finishing time. Additionally, having the bib number information retained the integrity of the data. Bib numbers assured that all participants, whether online or pen and paper, were completing a marathon within a few days of completing the survey. If the participant did not have a race bib number, they could not be located in the marathon results and were excluded from the analyses.

Measures

Unless otherwise indicated, all measures used a 5-point scale ranging from 1= *strongly disagree* to 5 = *strongly agree*. All scale items are presented in Appendix A. A copy of the paper and pencil survey is presented in Appendix B.

Goal clarity. Goal clarity was assessed with 4-items ($\alpha = .75$) adapted from Sawyer (1992).

Goal attainment. Goal attainment was measured with one item that asked participants their predicted race time. To assess attainment of the predicted time, participants' bib number was used to search for actual finishing time. The percentage difference between the predicted time and actual time was used as the measure of goal attainment.

Training group. Participation in an organized training group was used to assess training support. Specifically, participants responded to the statement; "Are you involved with an organized training group (i.e., do you have a consistent group of people that you meet with each week to train with)?" Responses were dummy-coded 1 = *yes* and 0 = *no*.

Self-affirmation. Four items ($\alpha = .81$) were adapted from Schmeichel and Vohs (2009) to assess the extent to which marathon training enhances positive aspects of participants.

Psychological detachment. Sonnentag and Fritz's (2007) 4-item measure of psychological detachment was used to assess how running gives participants a chance to forget about work ($\alpha = .89$).

Replenishment. Replenishment was assessed with six items developed by the author for this study ($\alpha = .90$).

Emotional exhaustion. Participants were given the 5-item subscale for emotional exhaustion from the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996; $\alpha = .87$). Responses were on a 7-point scale, ranging from 1 = *never* to 7 = *always*.

Engagement. To assess engagement, I used the vigor and dedication subscales of the Utrecht Work Engagement Scale (Schaufeli, Salanova, Gonzales-Roma, & Bakker, 2002; $\alpha = .90$). Each subscale included three items. Items were rated on a 7-point scale ranging from 1 = *never* to 7 = *always*.

Job satisfaction. Participants responded to three items adapted from the Michigan Organizational Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1979) regarding their satisfaction with the job ($\alpha = .91$).

Control variables. I measured conscientiousness ($\alpha = .75$) and neuroticism ($\alpha = .81$) with the Big Five Personality Inventory (John, Donahue, & Kentle, 1991). Each dimension was assessed with five items. Individuals were also asked if they were competing in the full marathon or half marathon and how many hours per week they spent running. Event participation (1 = *half marathon* and 2 = *full marathon*) and the number of hours run per week were also used as control variables.

CHAPTER 9

RESULTS

Means, standard deviations, alpha reliabilities, and the intercorrelation matrix are presented in Table 1. Because the data were collected using same source measures for the hypothesized model, presented in Figure 1, I used Mplus (Muthén & Muthén, 2008) to conduct factor analyses (CFA) to establish the validity of the measurement model prior to testing the hypotheses. In the first model, I entered the latent variables for the continuous constructs included in the hypothesized model: goals, psychological detachment, self-affirmation, replenishment, emotional exhaustion, engagement, satisfaction, and workplace support for exercise. Examination of modification indices for the 8-factor model suggested a correlated uniqueness between Items 3 and 4 from the workplace support scale. This 8-factor model demonstrated good fit ($\chi^2(600) = 1086.18, p = .00; (CFI) = .90, (RMSEA) = .06$). I compared this 8-factor model to a two-factor model, in which all training characteristics loaded on one factor, while the mediator and dependent variables loaded on a second and third factor. Lastly, I tested a one-factor model. Neither of these models fit the data.

In addition to the CFA, because all constructs were self-reported by marathon participants, I conducted analyses to test for the effect of common method variance (CMV) on the results (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Williams, Cote, & Buckley, 1989). The average variance explained by the method factor was 15 percent, which was well below the 25 percent average that Williams and colleagues reported for published studies. Moreover, model fit did not improve by adding the latent method factor to the measurement model. Therefore, I concluded that CMV did not pose a substantial threat to the interpretation of the results.

After establishing the validity of the research model, I examined the hypotheses in SPSS using hierarchical, moderated multiple regression analysis. First, I centered all predictor variables prior to analyses (Aiken & West, 1991). To test Hypotheses 1-6, I regressed replenishment on each training characteristic. In Step 1, I entered the control variables—conscientiousness, neuroticism, event participation (i.e., marathon or half marathon) and hours run per week. In Step 2, I entered the main effects of goal clarity, goal attainment, self-affirmation, training group, and psychological detachment. I also entered workplace support for exercise. Finally, in Step 3, I entered the interaction terms -- workplace support x training group, workplace support x goal clarity, workplace support x self-affirmation, and workplace support x psychological detachment.

Conscientiousness and neuroticism had several strong relationships with well-being outcomes and replenishment. Neuroticism was positively related with emotional exhaustion and negatively related with engagement ($\beta = .38, p < .01$; $\beta = -.15, p < .05$). Conscientiousness was positively related to replenishment and job satisfaction ($\beta = .16, p < .01$; $\beta = .16, p < .05$). These findings are consistent with the conceptualization of conscientiousness as a resource-providing characteristic that helps employees deal with the demands of their work and neuroticism as a resource-draining characteristic.

The addition of training characteristics to the regression model resulted in a significant increase in the variance explained in replenishment ($\Delta R^2 = .26, p < .01$). Contrary to Hypothesis 1, training group participation was not positively related to replenishment. Individuals who belonged to a formal training group reported less replenishment than individuals who trained primarily on their own ($\beta = -.12, p = .05$). This effect was significant in the opposite direction of Hypothesis 1. Hypothesis 2 received support, as self-affirmation was positively related to

feelings of replenishment ($\beta = .46, p < .01$). Self-affirmation in running was the strongest indicator of replenishment. Hypothesis 3 and Hypothesis 4 did not receive support, as neither psychological detachment nor goal clarity were related to feelings of replenishment at work ($\beta = .06, p = ns$; $\beta = .10, p = ns$). Lastly, there was no evidence that achieving one's predicted goal time in the marathon increased reports of replenishment ($\beta = .03, p = ns$), failing to support Hypothesis 5.

In the next step, the addition of the four interaction terms increased the percentage of variance explained in the model ($\Delta R^2 = .04, p < .01$). There were two significant interaction effects. Specifically, the workplace support x goal clarity interaction and the workplace support x psychological detachment interaction were significant ($\beta = -.12, p < .10$; $\beta = .21, p < .01$). In order to understand the nature of these interactions, I plotted the training characteristics at ± 1 standard deviations of replenishment. The workplace support x goal clarity interaction was in the opposite direction than hypothesized. A test of the simple slopes did not reveal a significant slope difference among participants reporting high levels of workplace support (*simple slope* = .02, $t = .23, p = ns$). As shown in Figure 3, Hypothesis 6d was supported, as the relationship between psychological detachment and replenishment was stronger among individuals who had support from their work environment. The simple slope for participants reporting high levels of work support was significantly different from zero (*simple slope* = .14, $t = 2.65, p < .01$), suggesting that workplace support enhances the replenishing effects of psychological detachment.

I followed the steps outlined by Baron and Kenny (1986) to assess the mediated moderation model, which is presented in Figure 1. According to the procedure, I had to establish that there were effects between the training characteristics and dependent variables. There were

no formal hypotheses regarding these relationships. However, performing this step of analyses is necessary for assessing the mediated moderation model (Baron & Kenny, 1986). First, I regressed the well-being outcomes (i.e., engagement, exhaustion, and job satisfaction) on the control variables. Next, I entered each training characteristic (goal clarity, goal attainment, self-affirmation, training, predicted time and psychological detachment) to assess how each variable was correlated with each well-being measure. In the third step, I entered the interaction terms. Results for these analyses are displayed in Model 1 in Tables 4-6. As displayed in Model 1 in Table 3, engagement showed the strongest relationship with training characteristics. Additionally, goal clarity was positively associated with increased engagement ($\beta = .16, p < .05$). Contrary to previous research, psychological detachment was negatively related to engagement ($\beta = -.17, p < .05$) and participation in a training group was also negatively related to engagement ($\beta = -.17, p < .05$). Lastly, Model 1 in Table 4 shows that goal attainment was negatively related to emotional exhaustion ($\beta = -.13, p < .10$), signifying that individuals who achieved their goal time in the marathon reported less emotional exhaustion. Job satisfaction did not show any relationships with training characteristics.

To test Hypotheses 7a-c that replenishment affects well-being, I performed the regression procedures in three separate instances in order to assess each outcome variable – engagement, emotional exhaustion, and job satisfaction. In the first step, I entered the control variables. In Step 2, I entered the main effects of training characteristics and workplace support. In the third step, I entered the interaction terms. Finally, in Step 4, I added replenishment into the model. Entering the training characteristics, interaction terms, and the proposed mediator (i.e., replenishment) allowed me to control for these effects when determining the effect of replenishment on the well-being outcomes. Results for these analyses are displayed as Model 3

in Tables 4-6. Replenishment was positively associated with engagement ($\beta = .21, p < .05; \Delta R^2 = .03, p < .05$), showing support for Hypothesis 7a. Replenishment was also positively associated with emotional exhaustion ($\beta = .16, p < .10; \Delta R^2 = .02, p < .10$). This significant effect was in the opposite direction of Hypothesis 7c, failing to show support for the proposition that replenishment decreases emotional exhaustion. Hypothesis 7b was not supported, as there was no relationship between replenishment and job satisfaction ($\beta = .09, p = ns; \Delta R^2 = .01, p = ns$).

To support Hypothesis 8 and establish that replenishment completely mediated the training characteristic-well-being relationship, the effect of the training characteristics on each employee well-being outcome controlling for replenishment would have to be zero. Tables 4-6 provide a summary of these results according to the procedure outlined by Baron and Kenny (1986). Model 1 establishes the relationship between the training characteristics and hypothesized interactions with well-being. In Model 2, I regressed replenishment on the hypothesized training characteristics and interactions to determine if these relationships were significantly related to replenishment. In Model 3, I added replenishment as a predictor of each well-being outcome. The first two models establish: (a) that there is an effect that may be mediated and (b) that the training characteristics are related to replenishment (i.e., mediator). If both of these conditions are satisfied, then complete mediation is possible. Model 3 shows whether or not replenishment affects the well-being outcomes. As shown in Tables 4-5, there was no evidence for complete mediation (i.e., the effect of each training characteristic on each well-being outcome controlling for replenishment was not zero), failing to support Hypotheses 8a-d.

Supplemental Results

Although the analyses failed to show evidence for full mediation, additional analyses were conducted to assess partial mediation. The mediated moderation model in Figure 1 was tested as a path model in Mplus in order to assess the indirect effects of the training characteristics. This model controlled for covariates, partialling out potentially biasing effects from the mediator and dependent variable. Conscientiousness, neuroticism, hours run per week, and event participation were all entered as covariates. Analyses of the indirect effects revealed one significant finding from self-affirmation to engagement ($\beta = .07, p < .05$). Results from the path model are displayed in Figure 4.

There were several interesting non-hypothesized relationships in the results. Specifically, the workplace support and goal clarity interaction predicted engagement ($\beta = .17, p < .05$), and the workplace support and training group participation interaction predicted emotional exhaustion and job satisfaction ($\beta = .21, p < .05$; $\beta = -.20, p < .05$). In order to understand the nature of these interactions, I plotted the training characteristic (i.e., goal clarity and training group participation) at ± 1 standard deviation of each well-being outcome. First, Figure 5 shows that participants with high goal clarity and high levels of workplace support experienced more engagement than people with low workplace support and high or low goal clarity. The simple slope for participants reporting high levels of work support was significantly different from zero (*simple slope* = .38, $t = 2.74, p < .01$). In other words, clear goals and the support from colleagues in the goal-related domain increased engagement, signifying the importance of work support in reaping the benefits of goal clarity in leisure time pursuits. Second, Figure 6 illustrates the workplace support for exercise x training group interaction predicting job satisfaction. The simple slope for participants reporting high levels of work support was not significantly different

from zero. Third, Figure 7 shows that workplace support buffered the negative effects of training alone on employee emotional exhaustion. The simple slope for participants reporting high levels of work support was marginally significantly different from zero (*simple slope* = .38, $t = 1.89$, $p = .06$), suggesting that workplace support strengthens the relationship between training group participation and emotional exhaustion. This interaction implies that belonging to a training group and having high levels of support from the workplace results in higher levels of emotional exhaustion.

Lastly, I performed an exploratory factor analysis (EFA) on the replenishment and engagement scale items. The purpose of the EFA was to investigate the dimensionality of the scale items. Specifically, the items for the two scales have similar conceptual meanings (i.e., increased energy at work), yet the two scales are used to assess distinct constructs. In order to assure that engagement and replenishment formed two separate scales, I performed a principal component analysis on the items from both scales. Investigation of the scree plot revealed two distinct factors. Furthermore, the rotated component matrix differentiated between the two constructs. The six replenishment items loaded on one construct, and the six engagement items loaded on a separate construct.

CHAPTER 10

DISCUSSION

The purpose of this study was to examine how leisure time characteristics promote replenishment, which, in turn, increases job satisfaction and engagement and decreases emotional exhaustion. Applying self-determination and goal-setting theories, I identified training group support, self-affirmation, psychological detachment, goal clarity, and goal attainment as characteristics likely to result in replenishment, thereby enhancing employee well-being. I operationalized the research model by surveying a sample of 218 marathon and half marathon participants regarding their training characteristics, replenishment, and well-being. The empirical investigation of the research questions yielded four potentially important contributions to the recovery literature. First, I found that self-affirmation in running was related to increased reports of replenishment. This may be the first study to identify self-affirmation as an off-job characteristic related to the recovery process, drawing attention to the important role of self-worth and personal values in off-job activities. Second, I found that workplace support for exercise moderated the relationship between psychological detachment and replenishment. This finding highlights the important role of the work environment in facilitating successful recovery experiences. Third, I identified a positive relationship between replenishment and engagement. These results suggest that feeling recovered during off-job activities has important consequences for influencing workplace vigor and dedication. Fourth, I did not find evidence for replenishment as a mediator in the relationship between training characteristics and employee well-being. Thus, although resources help employees cope with stress (Hobfoll, 1989), the appraisal of resource gain may not explain the process through which off-job activities promote health and satisfaction among workers.

Implications

Research. I hypothesized a positive relationship between five different training characteristics (i.e., training group support, self-affirmation, psychological detachment, goal clarity, and goal attainment) and replenishment. Self-affirmation, goal clarity and psychological detachment were significantly positively correlated with replenishment. However, the inclusion of control variables and the five training characteristics in the regression model suppressed the goal-clarity-replenishment and psychological detachment-replenishment relationships. The only training characteristic to show a significant relationship with replenishment in the regression equation was self-affirmation. This finding is consistent with SDT and highlights the important role of affirming personal values in off-job activities. Previous literature has cited the benefits of focusing on tasks that promote self-worth and emphasize the positive characteristics of an individual (Sherman & Cohen, 2006). Marathon training may be an area where individuals can reaffirm their hard work ethic and mental strength, thus providing them with positive self-evaluations and increasing their resources.

In addition to the proposed main effects of training characteristics on employee well-being, I hypothesized workplace support for exercise as a moderator in the relationship between four of the training characteristics (i.e., training group support, self-affirmation, psychological detachment, and goal clarity) and replenishment. One hypothesized interaction supported the perspective that workplace support enhances the benefits of training characteristics. Specifically, workplace support moderated the relationship between replenishment and psychological detachment such that individuals with high levels of work support and high detachment experienced the most replenishment. Alone, psychological detachment did not show the hypothesized positive relationship with replenishment. The detachment x support interaction

suggests that a positive work context is important for employees to psychologically detach from work.

I hypothesized a positive relationship between replenishment and job satisfaction and engagement and a negative relationship between replenishment and emotional exhaustion. As predicted, replenishment was indicative of engagement, providing empirical evidence for the perspective that off-job recovery increases energy and vigor at work. However, replenishment was also positively related to emotional exhaustion. This relationship occurred after controlling for several other relationships, suggesting the previous research linking replenishment with reductions in burnout has not controlled for the effect of important covariates, such as personality. Replenishment had no effect on job satisfaction.

The last set of hypotheses investigated the role of replenishment in linking training characteristics with well-being outcomes. Previous research on recovery has used COR theory as a framework for explaining the process through which off-job activities can enhance worker well-being. Results from this study suggested that replenishment (i.e., perceiving an increase in resources) did not account for the relationship between marathon training and worker well-being. Self-affirmation was the only variable that showed an indirect effect on engagement via replenishment. This partial mediation may not provide support for cognitive appraisal of a gain in resources as a mechanism that increases employee well-being outcomes as a consequence of engagement in leisure time activities.

It is important to point out that COR is a resource-based stress theory, not an appraisal-based stress theory (Hobfoll, 1988). Stated briefly, cognitive awareness of resource gain or loss is not a key determinant of COR's stress theory. Rather, COR conceptualizes stress as the fit between the demands of an individual and the resources the individual has to fulfill the demands,

regardless of appraisal (Hobfoll, 2001). Therefore, although replenishment was not a mediating mechanism in this research, this finding does not abandon COR as an important framework for the recovery literature. Rather, this study suggests that the psychological process of recovery may not include the appraisal of replenishment. This study provided more evidence for a direct link between training characteristics and well-being outcomes. For instance, goal clarity in marathon training was associated with engagement at work. However, goal clarity was not directly related to replenishment. The process of goal-setting in training may build resources, thus increasing the resources individuals have to invest at work and positively influencing engagement.

Although the hypotheses were not fully supported, there were several additional interesting findings from the current study. These relationships deserve attention as they may have important implications for research regarding the relationship between off-job activities, replenishment, and well-being. Contrary to the hypothesized relationship, training group participation was negatively related to replenishment. Perhaps individuals who belong to an organized training group feel pressure to run, and the demands of the training group may actually add to the long list of duties they have to fulfill. From this perspective, having an obligation to a training group may serve as an additional stressor. Furthermore, the training group as an obligation perspective is consistent with the conceptualization of the marathon as a challenge stressor. If an individual belongs to a formal training group, then the pursuit of training is no longer completely autonomous and controlled by the individual. Obligations to the training group may take away elements of individual control in the marathon pursuit.

The remaining three training characteristics (i.e., psychological detachment, goal clarity, and goal attainment) failed to show a relationship with replenishment in the regression results.

Sonnentag and Fritz (2007) indicated the importance of psychological detachment for unwinding from work. In the present study, however, psychological detachment was unrelated to recovery when self-affirmation was included in the regression equation. Investigating psychological detachment in conjunction with other recovery experiences may help researchers identify the most important type of recovery experiences. Additionally, neither goal clarity nor goal attainment, conceptualized as the difference between one's predicted race time and actual race time, were related to replenishment. Individuals with clear goals did not experience a greater gain in resources. Overall, the findings suggest that it is not the approach (i.e., goals, training group) that produces benefits, but what the activity says about one's personality and how the activity enhances one's perspective regarding their capabilities.

Although engagement was the only well-being outcome related to replenishment, workplace support for exercise, goal attainment, and goal clarity were predictive of the health outcomes included in this research. First, workplace support for exercise was an important indicator of increased engagement and job satisfaction and reduced emotional exhaustion. From a theoretical perspective, this finding suggests that variables related to the context of the work environment may be important for understanding the relationship between off-job activities and worker well-being. The results from this study suggest that employees who feel that the context of their work environment supports their marathon training report higher levels of job satisfaction, engagement, and reduced emotional exhaustion. This perspective echoes research on P-O fit, as opportunities to relate to employees regarding off-job hobbies may create a more enjoyable work context for employees. Second, goal attainment was negatively related to emotional exhaustion. Due to the cross-sectional nature of these data, the direction of this relationship is unknown. This finding may suggest that emotionally exhausted employees lack

the energy to attain their goals, or that failure to attain goals increases emotional exhaustion. Third, goal clarity was positively related to engagement. Therefore, in accordance with goal-setting theory, setting realistic, attainable goals may be important for participants if they want to maximize their well-being outcomes from marathon training.

Additionally, two interactions were predictive of employee well-being, providing important implications for including SDT in future research regarding the link between off-job activities and well-being. First, the training group x work support interaction showed that individuals with high work support and a training group reported significantly more emotional exhaustion. Specifically, if employees have high support at work then pursuing training in an autonomous setting with complete control over the training regime may produce greater benefit than joining a supportive training group. Thus, finding a balance in pursuing off-job activities that fulfill unmet needs rather than pursuing an off-job activity that supplements the needs met at work may prove particularly beneficial. This line of thinking aligns with SDT and highlights the importance of investigating the relationship between met and unmet needs in the on-job and off-job environment. Because of the post-hoc interpretation of this interaction, the concept of balancing met and unmet needs may benefit from further investigation in future research. Second, there was a significant workplace support x goal clarity interaction with engagement as the outcome, such that workplace support increased the strength of the relationship between goal clarity and engagement. This interaction provides further evidence for the importance of a workplace that supports employees' marathon training. Organizations may reap supplementary benefits from an employees' off-job marathon training if they are supportive of the endeavor.

There were two findings from this study that challenge theory regarding the benefits of off-job activities for on-job behavior. First, psychological detachment was negatively related to

engagement, contradicting the psychological detachment-well-being relationship suggested by Sonnentag (2003) and Sonnentag and Fritz (2007). This study suggests that not thinking about work during leisure time is related to low dedication and vigor at work. Psychological detachment may result in positive health outcomes because it prevents stressors from taking a toll on individual health after work hours, but it may also signal a lack of dedication to one's job. Future research investigating the interactions of psychological detachment and work stressors predicting on-job and off-job well-being outcomes will help clarify the relationship between detachment and employee health. Second, self-affirmation was negatively related to job satisfaction. Due to the cross-sectional nature of the data, this result may imply (a) that people who find value in running are less satisfied in their job, or (b) that unsatisfied employees are more likely to identify with running to compensate for low job satisfaction. Investigating the relationship between job-related attitudes and self-affirmation in future research may help explain the nature of this relationship.

Lastly, an interesting implication of this study was the role of personality in predicting recovery and worker well-being. The recovery literature has paid little attention to personality characteristics as predictive of recovery and worker well-being. Employee levels of conscientiousness and neuroticism are important to consider in the recovery literature, as personality may represent a significant contributing factor in determining effective recovery strategies for employees.

Practice. The findings of this study have practical importance for organizations and employees. Specifically, results suggest that organizations can help instigate successful recovery experiences and benefit from having a recovered workforce. This study showed the importance of support for exercise in the workplace. Employees with greater levels of marathon support at

work reported less emotional exhaustion and more engagement and satisfaction. This supports previous literature on the importance of creating a workplace health climate in order to stimulate greater well-being and satisfaction at work (Giga, Cooper, & Faragher, 2003). Implementing such a climate could have substantial cost benefits for organizations in terms of employee productivity and health costs. Furthermore, this research had the strongest implications in terms of increasing employee engagement. Thus, organizations seeking to increase engagement among employees may benefit from emphasizing the importance of recovering from work.

Another contribution of this research is the information provided to workers regarding important characteristics of off-job activities. In particular, there was a strong link between self-affirmation and replenishment. It appears that employees may benefit from pursuing an off-job activity with goals and a purpose that enhances their self-esteem. Lastly, this research classified training group participation as a negative indicator of recovery and engagement. Therefore, although clear goals are beneficial, it appears that too much structure or the presence of being ‘required’ to run due to one’s obligation to a training group may negatively impact the recovery process.

Limitations and Future Research Directions

I emphasize three limitations. First, these data were self-reported, which raises the issue of CMV in the study findings. However, evidence suggests that problems regarding CMV are not as severe as once thought (Spector, 2006). Furthermore, I performed analyses to investigate the severity of CMV and concluded that CMV was not an issue in the current study. Second, these data were collected at one time point. Collecting data at multiple time points during the training process may shed light on several additional important relationships. For example, the intensity of the current training program may impact replenishment and well-being. High mileage training

weeks may lead to greater overall fatigue than low mileage training weeks, and fatigue levels may impact energy at work. Additionally, it would be interesting to assess recovery and well-being outcomes of the worker post-marathon. Running a full marathon can be physically exhausting, and this may have implications for employee health the week after the marathon. Third, there was no reference group used in this study, making it impossible to compare the benefits of marathon training to a control group or to a group pursuing a different off-job activity. The purpose of this research was to identify important training characteristics and examine the recovery process. Thus, a reference group was a prime concern. Nevertheless, having a group with which to compare the marathon participants may increase knowledge regarding the off-job activity-replenishment relationship.

Investigating alternate ways to assess replenishment may help clarify the relationship between perceptions of recovery and employee well-being. For example, using a diary study method that assesses participants' recovery experiences as well as their daily training and work experiences may shed light on the relationship between work-leisure balance and recovery. Surveying employees on their energy levels immediately after work and then again immediately after the leisure activity may help tease apart important elements of the recovery process. Furthermore, future research may attain a greater understanding of the recovery process by asking employees what prevents them from feeling recovered during off-job time.

Focusing on the balancing act of work and marathon training and how this balance is related to recovery may help individuals understand the important features of the recovery process. Using SDT in future research to assess how unmet needs at work may be fulfilled in off-job activities, thereby enhancing recovery, has the potential to contribute to theory on the relationship between leisure time experiences and work related outcomes. In order to conduct

this type of research, information regarding job characteristics would have to be collected in conjunction with information regarding leisure time characteristics.

As mentioned by Sonnentag and Fritz (2007), there are several potential other unstudied recovery experiences. In this study, self-affirmation was highlighted as an important antecedent to recovery. Continuing to investigate additional experiences that lead to recovery may add to research regarding the important components of recovery activities. Additionally, combining information regarding personality, job experiences, and recovery experiences may provide a road map for identifying important elements of recovery depending on the individual and the job characteristics.

Conclusion

The purpose of this study was to add to the growing body of literature regarding the relationship between off-job activities and employee well-being. Specifically, this study attempted to answer several new questions in the area of off-job research. First, I studied a specific leisure time activity: marathon / half marathon training. This design allowed for the investigation of specific questions related to the approach to off-job activities and the important recovery related elements off the off-job activity. Second, using SDT, I investigated specific leisure time characteristics associated with increased recovery and well-being. This approach shed light on the elements of leisure activities that facilitated feelings of recovery, providing implications for how employees may benefit from their approach to off-job activities. Third, I examined the basis of the recovery literature by testing the COR proposition regarding the role of resource gain in predicting well-being outcomes. I proposed that replenishment (i.e., a gain in resources) was positively related to engagement and job satisfaction and negatively related to

well-being. Furthermore, I examined replenishment's role as a mediator in the relationship between training characteristics and well-being outcomes.

Overall, this research provided insight regarding three important issues in the recovery literature. Studying a specific leisure activity and assessing how the approach to that activity impacted replenishment provided important information regarding the replenishing effects of self-affirmation in running. Next, investigation of the link between replenishment and well-being provided support for the relationship between recovery and employee engagement. Furthermore, examining replenishment as a mediator in the off-job activity-well-being relationship directly tested the mechanism through which leisure time activities influence well-being. The null finding regarding this concept brings into question the assumption that off-job activities increase resources, thereby positively impacting health and satisfaction. I encourage future researchers to continue to investigate the psychological process related to the recovery process and address this concept in other areas of off-job activities.

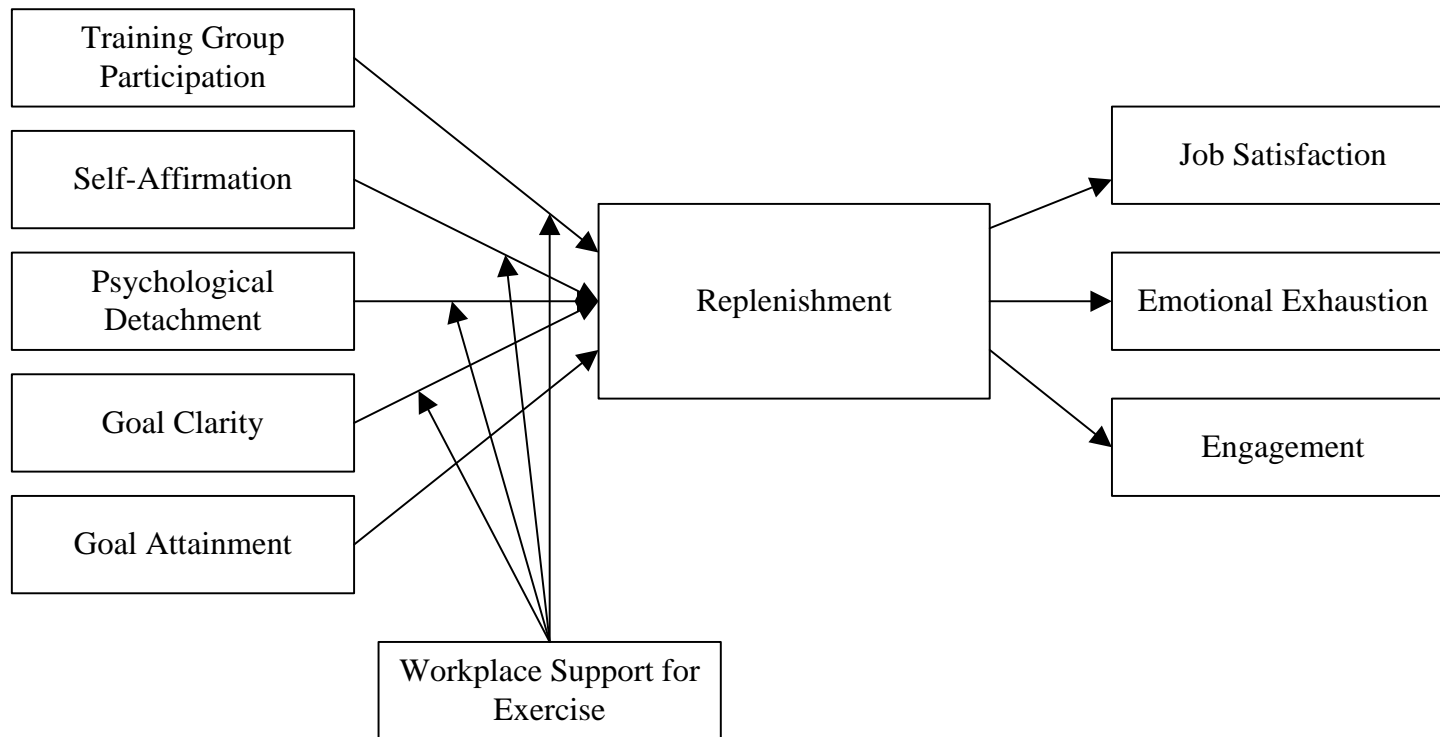


Figure 1. Diagram of the hypothesized relationships.

Table 1
Descriptive Statistics, Alpha Reliabilities and Correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Training Group	--	--	(--)													
2. Self-Affirmation	4.33	0.60	.06	(.81)												
3. Detachment	4.09	0.86	-.07	.34**	(.89)											
4. Goal Clarity	3.76	0.73	.22**	.26**	.18**	(.75)										
5. Goal Attainment	0.03	0.09	.11	.00	-.02	-.13 ⁺	(--)									
6. Workplace Support	3.32	0.91	.09	.11	-.07	.03	.07	(.87)								
7. Replenishment	4.20	0.62	-.09	.60**	.36**	.22**	.02	.11	(.90)							
8. Engagement	4.95	1.00	-.08	.05	-.10	.14*	.08	.33**	.18**	(.90)						
9. Emotional Exhaustion	3.86	1.03	.01	.04	.04	-.05	-.07	-.16*	.06	-.43**	(.87)					
10. Job Satisfaction	4.06	0.78	.02	-.05	-.10	-.03	.10	.40**	.05	.74**	-.48**	(.91)				
11. Neuroticism	2.28	0.76	-.01	.02	-.17 ⁺	-.12 ⁺	.07	-.01	.02	-.18**	-.37**	-.07	(.81)			
12. Conscientiousness	4.26	0.48	-.01	.27**	.14*	.11	.06	.08	.34**	.23**	-.03	.17*	-.02	(.75)		
13. Hours run per week	6.32	4.04	-.11	.16*	.01	.17*	.15*	.13 ⁺	.05	.24**	-.02	.13 ⁺	-.07	.17*	(--)	
14. Event	--	--	.11	.03	-.02	.19**	-.21**	-.10	.04	.01	-.10	-.02	-.05	-.02	.10	(--)

Note. Alpha reliabilities (α) displayed on diagonal, $p < .10^+$, $p < .05^*$, $p < .01^{**}$.

Table 2
Regression Results Predicting Well-Being Outcomes

Control Variables	<i>Engagement</i>		<i>Emotional Exhaustion</i>		<i>Job Satisfaction</i>	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Conscientiousness	.14*	.18*	.02	.01	.12	.16*
Neuroticism	-.16*	-.17*	.36**	.38**	-.08	-.09
Hours run per week	.20**	.12	.00	.03	.05	.00
Event	-.01	-.01	-.11	-.14*	.02	.06
Main Effects						
Self-Affirmation		.00		.04		-.12
Psychological Detachment		-.17*		.09		-.06
Goal Clarity		.14 ⁺		-.06		.01
Training Group		-.14*		.02		.03
Goal Attainment		.04		-.13 ⁺		.08
Workplace Support		.27**		-.11		.32**
ΔR^2	.09**	.12**	.14**	.04	.03	.13**
Adjusted R^2	.08**	.17**	.12**	.13**	.01	.11**

Note. $p < .10^+$, $p < .05^*$, $p < .01^{**}$.

Table 3
Regression Results Predicting Replenishment

Control Variables	Step 1	Step 2	Step 3
Conscientiousness	.36**	.19**	.16**
Neuroticism	-.05	-.01	.00
Hours run per week	.01	-.06	-.06
Event	.02	.03	.00
Main Effects			
Self-Affirmation		.47**	.46**
Psychological Detachment		.09	.06
Goal Clarity		.09	.10
Training Group		-.13*	-.12*
Goal Attainment		.02	.03
Workplace Support (WS)		.07	.00
Interactions			
WS x Training Group			.11
WS x Goal Clarity			-.12 ⁺
WS x Self-Affirmation			.06
WS x Psychological Detachment			.21**
ΔR^2	.13**	.26**	.04**
Adjusted R^2	.11**	.35**	.39**

Note. $p < .10^+$, $p < .05^*$, $p < .01^{**}$.

Table 4

Summary of Results for Moderated Mediation Model

Control Variables	Model 1: Engagement			Model 2: Replenishment			Model 3: Engagement			
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 4
Conscientiousness	.14*	.15*	.15*	.36**	.19**	.16**	.15*	.15*	.16*	.12 ⁺
Neuroticism	-.16*	-.17*	-.19**	-.05	-.01	.00	-.16*	-.16*	-.19**	-.19*
Hours run per week	.20**	.12	.10	.01	-.06	-.06	.19**	.11	.10	.11
Event	-.01	.01	.02	.02	.03	.00	-.02	.01	.02	.02
Main Effects										
Self-Affirmation		.00	.01		.47**	.46**		.01	.01	-.08
Psychological Detachment		-.17*	-.17*		.09	.06		-.18*	-.18*	-.19*
Training Group		-.14*	-.17*		-.13*	-.12*		-.14*	-.16*	-.14*
Goal Clarity		.14 ⁺	.16*		.09	.10		.14 ⁺	.16*	.14 ⁺
Goal Attainment		.04	.06		.02	.03		.05	.06	.05
Workplace Support (WS)		.26**	.29**		.07	.00		.27**	.28**	.28**
Interactions										
WS x Training Group			-.04			.11			-.04	-.06
WS x Goal Clarity			.17*			-.12 ⁺			.17*	.19*
WS x SA			-.02			.06			-.02	-.03
WS x Detachment			-.01			.21**			-.02	-.06
Mediator										
Replenishment										.21*
ΔR^2	.09**	.12**	.02	.13**	.26**	.04**	.09**	.12**	.02	.03*
Adjusted R^2	.08**	.17**	.18**	.11**	.35**	.39**	.07**	.17**	.18**	.20**

Note. $p < .10^+$, $p < .05^*$, $p < .01^{**}$.

Table 5

Summary of Results for Moderated Mediation Model

Control Variables	Model 1: Emotional Exhaustion			Model 2: Replenishment			Model 3: Emotional Exhaustion			
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 4
Conscientiousness	.02	.01	.00	.36**	.19**	.16**	.02	.01	.00	-.02
Neuroticism	.36**	.37**	.38**	-.05	-.01	.00	.36**	.37**	.38**	.38**
Hours run per week	.00	.05	.05	.01	-.06	-.06	.00	.08	.05	.06
Event	-.11	-.14*	-.14 ⁺	.02	.03	.00	-.11	-.14 ⁺	-.14 ⁺	-.14 ⁺
Main Effects										
Self-Affirmation		.04	.04		.47**	.46**		.04	.04	-.03
Psychological Detachment		.09	.08		.09	.06		.09	.08	.07
Training Group		.02	.03		-.13*	-.12*		.02	.03	.05
Goal Clarity		-.06	-.09		.09	.10		-.06	-.09	-.11
Goal Attainment		-.13 ⁺	-.13 ⁺		.02	.03		-.13 ⁺	-.13 ⁺	-.13 ⁺
Workplace Support		-.11	-.25**		.07	.00		-.11	-.25**	-.25**
Interactions										
WS x Training Group			.21*			.11			.21*	.19*
WS x Goal Clarity			-.09			-.12 ⁺			-.09	-.07
WS x SA			.05			.06			.06	.05
WS x Psychological Detachment			-.03			.21**			-.03	-.06
Mediator										
Replenishment										.16 ⁺
ΔR^2	.14**	.04	.03	.13**	.26**	.04**	.14**	.04	.03	.02 ⁺
Adjusted R^2	.12**	.13**	.14**	.11**	.35**	.39**	.12**	.13**	.14**	.15**

Note. $p < .10^+$, $p < .05^*$, $p < .01^{**}$.

Table 6

Summary of Results for Moderated Mediation Model

Control Variables	Model 1: Job Satisfaction			Model 2: Replenishment			Model 3: Job Satisfaction			
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 4
Conscientiousness	.12 ⁺	.16*	.16*	.36**	.19**	.16**	.13 ⁺	.16*	.16*	.15*
Neuroticism	-.08	-.09	-.09	-.05	-.01	.00	-.08	-.09	-.09	-.09
Hours run per week	.05	-.01	-.02	.01	-.06	-.06	.05	-.01	-.02	-.02
Event	.02	.06	.05	.02	.03	.00	.02	.06	.05	.05
Main Effects										
Self-Affirmation		-.12	-.12		.47**	.46**		-.11	-.11	-.16 ⁺
Psychological Detachment		-.06	-.08		.09	.06		-.07	-.08	-.09
Training Group		.03	.01		-.13*	-.12*		.04	.02	.03
Goal Clarity		.01	.06		.09	.10		.01	.05	.05
Goal Attainment		.08	.10		.02	.03		.08	.10	.10
Workplace Support		.32**	.44**		.07	.00		.32**	.44**	.44**
Interactions										
WS x Training Group			-.20*			.11			-.19*	-.20*
WS x Goal Clarity			.09			-.12 ⁺			.08	.09
WS x SA			.05			.06			.06	.06
WS x Detachment			.08			.21**			.08	.06
Mediator										
Replenishment										.09
ΔR^2	.03	.13**	.04 ⁺	.13**	.26**	.04**	.03	.13**	.04 ⁺	.01
Adjusted R^2	.01	.10**	.13**	.11**	.35**	.39**	.01	.11**	.13**	.13**

Note. $p < .10^+$, $p < .05^*$, $p < .01^{**}$.

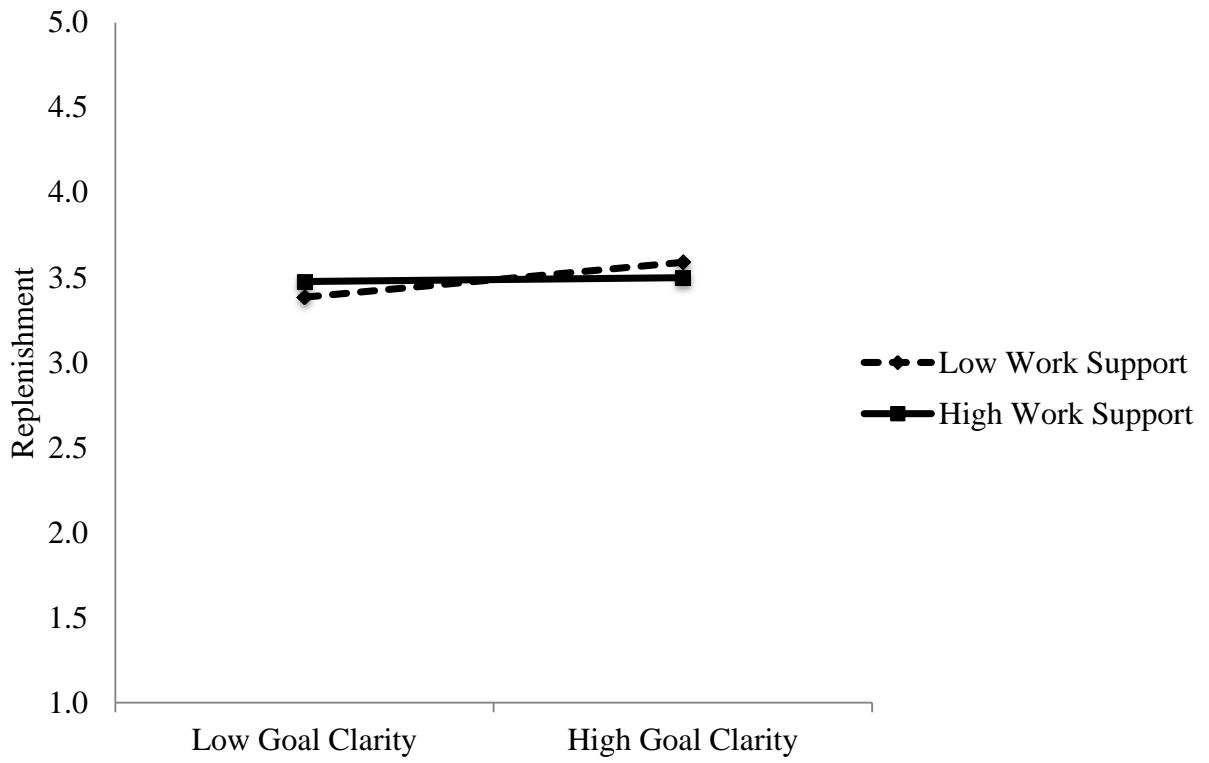


Figure 2. Workplace support for exercise as a moderator of the relationship between goal clarity and replenishment.

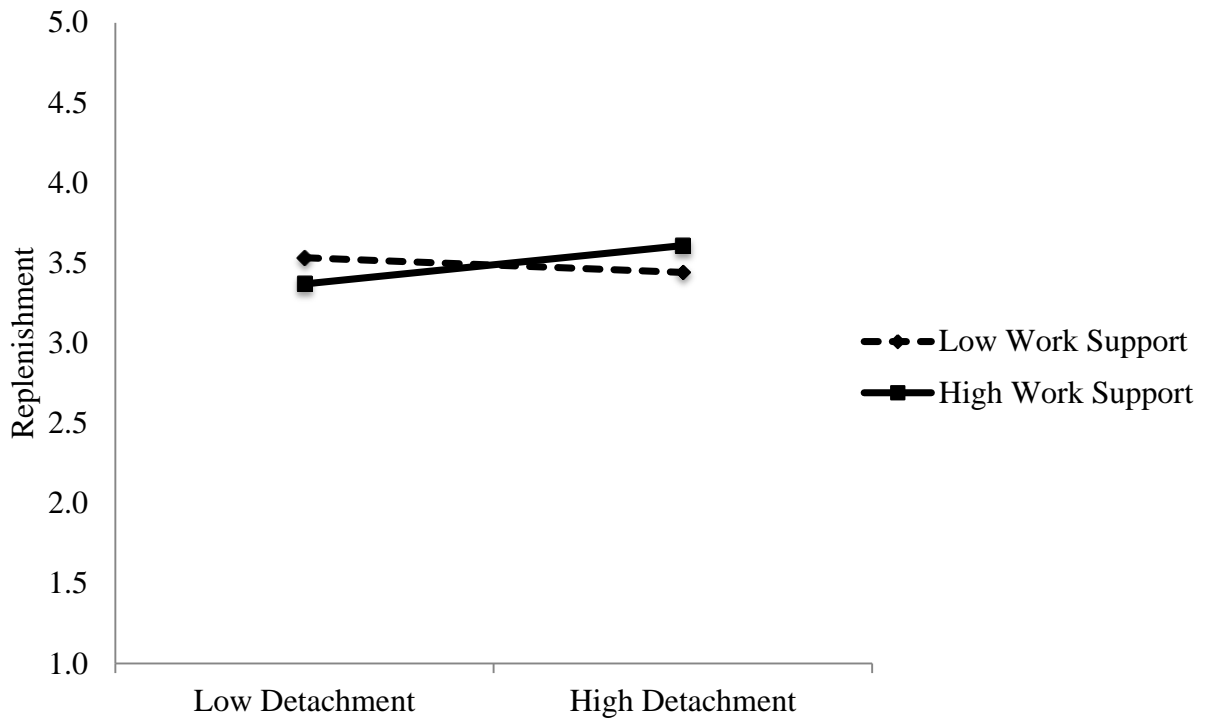


Figure 3. Workplace support for exercise as a moderator of the relationship between psychological detachment and replenishment.

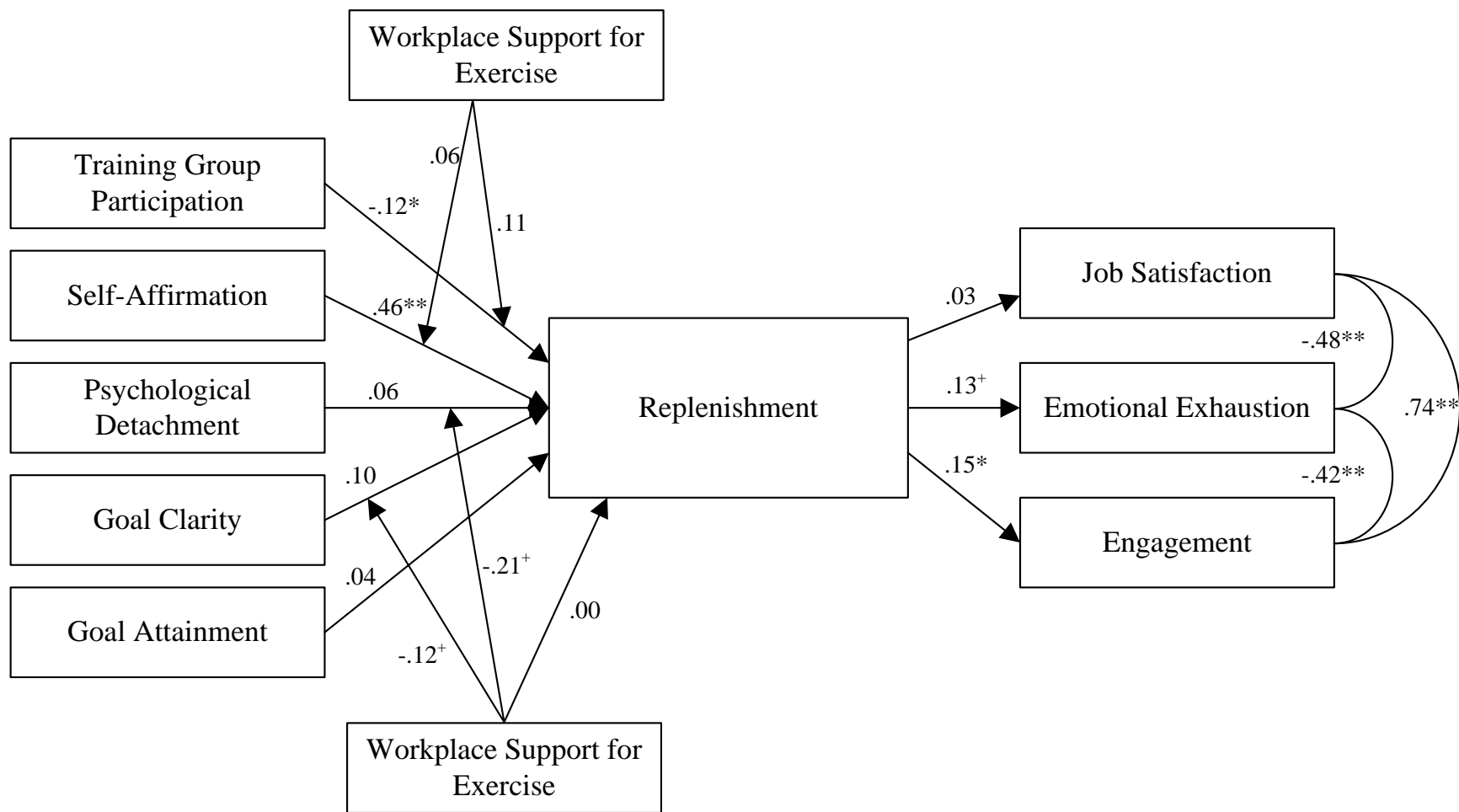


Figure 4. Results from the Mplus path model, $p < .10^+$, $p < .05^*$, $p < .01^{**}$. $\chi^2(30) = 81.09$, $p = .00$; (CFI) = .87, (RMSEA) = .09.

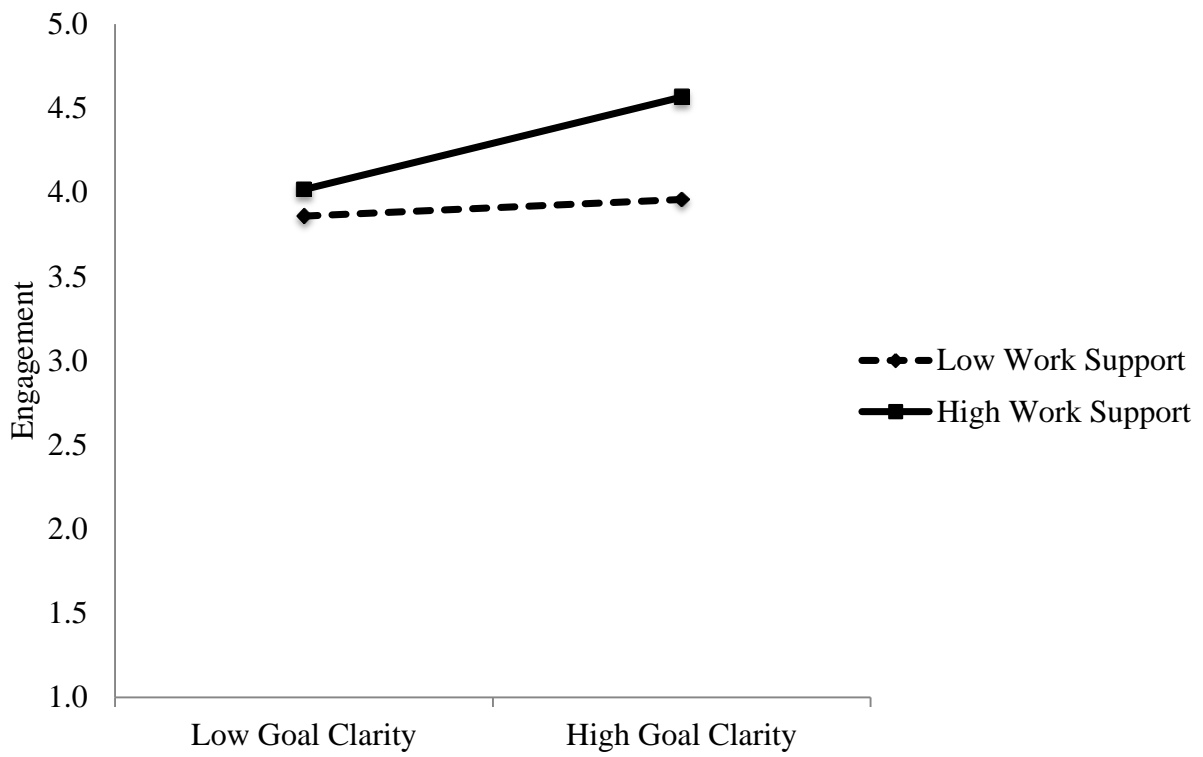


Figure 5. Workplace support for exercise as a moderator of the relationship between psychological detachment and engagement.

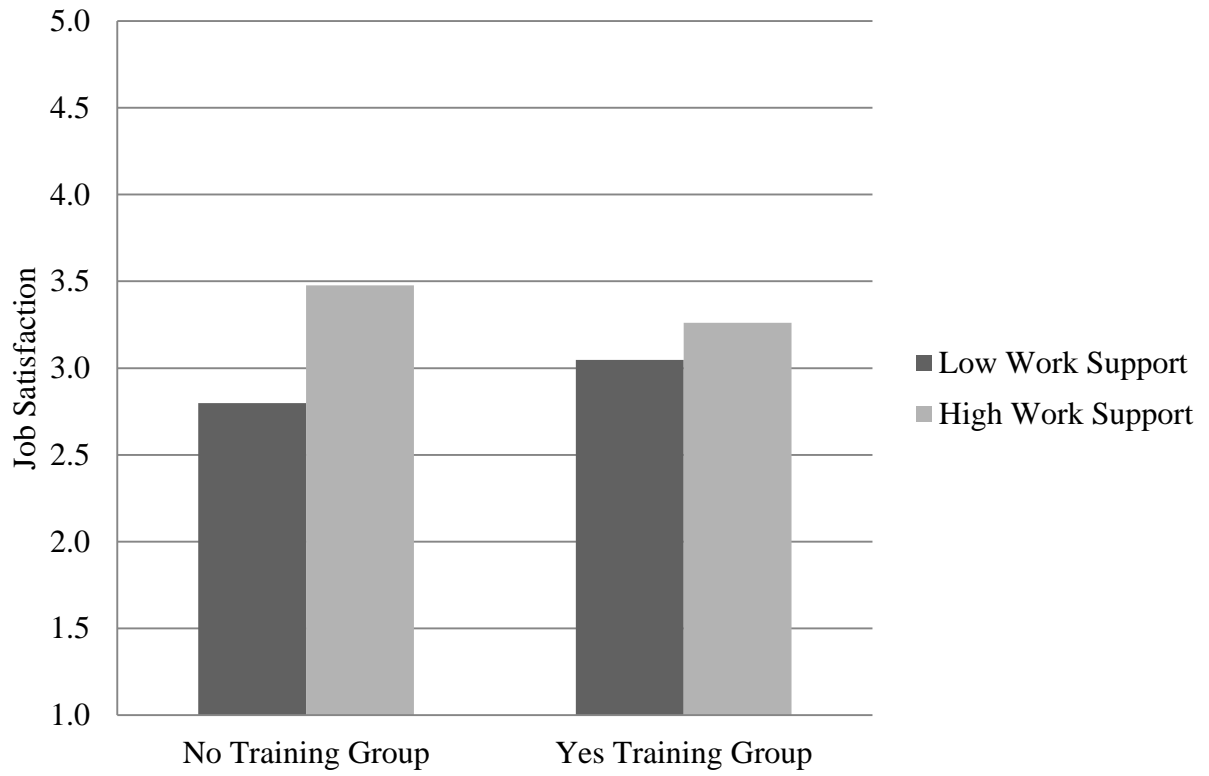


Figure 6. Workplace support for exercise as a moderator of the relationship between training group participation and job satisfaction.

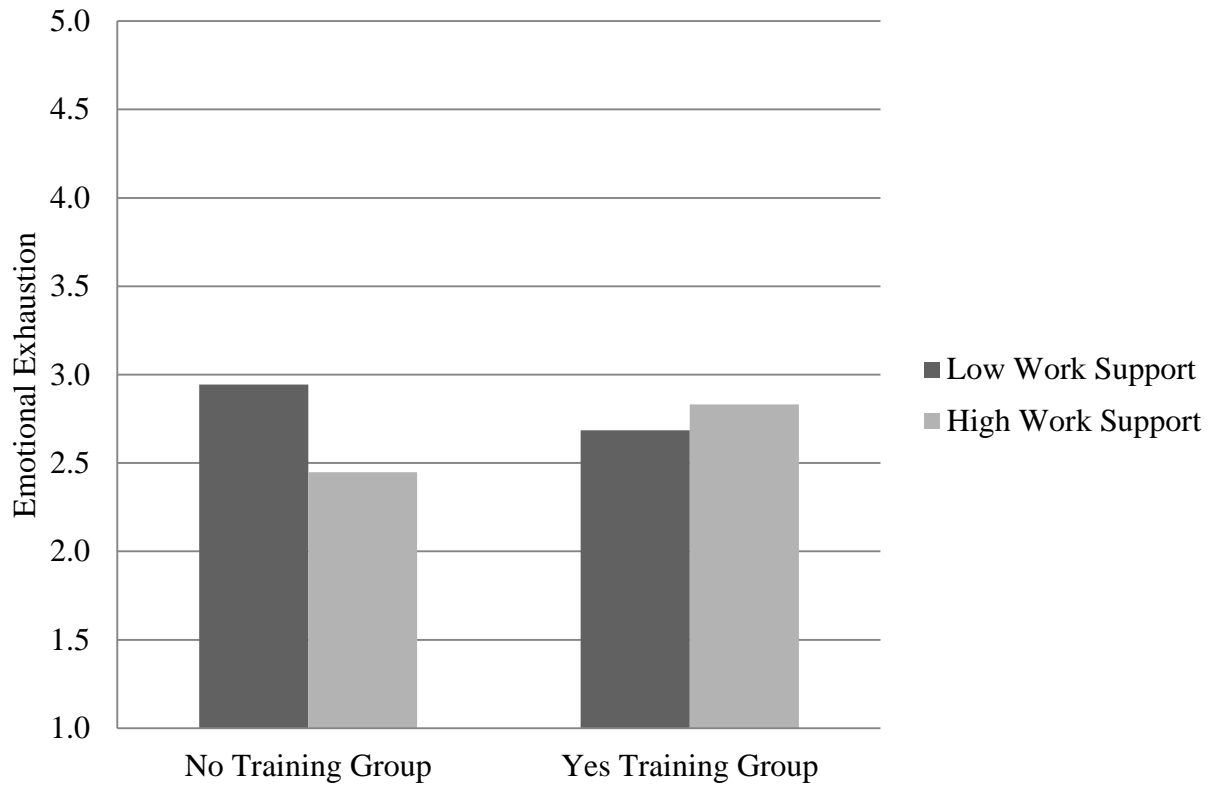


Figure 7. Workplace support for exercise as a moderator of the relationship training group participation and emotional exhaustion.

Appendix A

Job Satisfaction

All in all, I am satisfied with my job
In general, I like working at my job
I enjoy the work I do at my job

Emotional Exhaustion

I feel emotionally drained from my work
I feel used up at the end of the workday
I feel tired when I get up in the morning and have to face another day on the jog
Working all day is really a strain for me
I feel burned out from my work

Engagement

At my work, I feel that I am bursting with energy
At my job, I feel strong and vigorous
I am enthusiastic about my job
My job inspires me
When I get up in the morning, I feel like going to work
I am proud of the work that I do

Training Support

My training partners help me perform better
My training partners care about my progress as a runner
My running group encourages me when training gets tough
My training group always cares about me

Goal Clarity

Leading up to this marathon, I followed a clearly outlined training routine
I have goals to aim for during the marathon
I feel well-prepared for the marathon
I have a clear race plan for the marathon

Replenishment

Marathon training...

Helps me feel recovered from work
Helps me better deal with stress from work
Increases my physical energy for going back to work
Increases my mental energy for going back to work
Increases my emotional energy for going back to work
Is a good way for me to recover from my work duties

Psychological Detachment

When I'm running I forget about work
When I'm running I don't think about work at all

Running is a chance for me to distance myself from my work
When I'm running I get a break from the demands of work

Self-Affirmation

Running brings out the best in me
Running is a way for me to reflect on the positive aspects of myself
Running provides me with challenging goals that make me feel good about myself
Running has a lot of personal importance for me

Workplace Support for Exercise

Exercise is common among members of my workplace
The people at my work encourage each other to stay physically fit
People at work are interested in my pursuit of the marathon
My workplace supports and encourages my running
It is easy to find people interested in talking about running at work

Conscientiousness

I see myself as someone who...
Does a thorough job
Is a reliable worker
Perseveres until the task is finished
Does things efficiently
Makes plans and follows through on them

Neuroticism

I see myself as someone who...
Is depressed, blue
Can be tense
Worries a lot
Can be moody
Gets nervous easily

Appendix B

My Bib Number: _____

Competing in (circle): marathon / half marathon

My age (in years): _____

I will be very happy if my run time is _____ h _____ m below:

I predict that my run time will be: _____ h _____ m

I will be very disappointed if my run time _____ h _____ m is above:

<i>Instructions: Here are a few statements about your running environment and how you feel as a runner. Please circle your answer.</i>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Leading up to this marathon, I followed a clearly outlined training routine	1	2	3	4	5
I have a clear race plan for this marathon	1	2	3	4	5
I have goals to aim for during the marathon	1	2	3	4	5
I feel well-prepared for the marathon	1	2	3	4	5
When I'm running, I forget about work	1	2	3	4	5
When I'm running, I get a break from the demands of work	1	2	3	4	5
Running is a chance for me to distance myself from thinking about work	1	2	3	4	5
When I'm running, I don't think about work	1	2	3	4	5
Running brings out the best in me	1	2	3	4	5
Running is a way for me to reflect on the positive aspects of myself	1	2	3	4	5
Running provides me with challenging goals that make me feel good about myself	1	2	3	4	5
Running has a lot of personal importance for me	1	2	3	4	5
My training partners help me perform better	1	2	3	4	5
My training group always cares about me	1	2	3	4	5
My running group encourages me when training gets tough	1	2	3	4	5
My training partners care about my progress as a runner	1	2	3	4	5
<i>Instructions: Circle your response to the following questions regarding how marathon training impacts how you feel at work. Marathon training...</i>					
Helps me feel recovered from work	1	2	3	4	5
Helps me better deal with stress from work	1	2	3	4	5
Increases my physical energy for going back to work	1	2	3	4	5
Increases my mental energy for going back to work	1	2	3	4	5
Increases my emotional energy for going back to work	1	2	3	4	5
Is a good way for me to recover from my work duties	1	2	3	4	5

Instructions: The following statements are about how you feel at work. Read each statement carefully and indicate how often you feel this way about your job. Circle your answer.	Never	Almost Never	Rarely	Sometimes	Often	Very Often	Always
I feel emotionally drained from my work	1	2	3	4	5	6	7
I am enthusiastic about my job	1	2	3	4	5	6	7
Working all day is really a strain for me	1	2	3	4	5	6	7
I feel burned out from my work	1	2	3	4	5	6	7
I feel tired when I get up in the morning and have to face another day on the job	1	2	3	4	5	6	7
When I get up in the morning, I feel like going to work	1	2	3	4	5	6	7
I am proud of the work that I do	1	2	3	4	5	6	7
I feel used up at the end of the workday	1	2	3	4	5	6	7
At my job, I feel strong and vigorous	1	2	3	4	5	6	7
My job inspires me	1	2	3	4	5	6	7
At my work, I feel that I am bursting with energy	1	2	3	4	5	6	7

Instructions: Here are a few statements about your job and your workplace. Please circle your answer for each question.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My job allows me to make a lot of decisions on my own	1	2	3	4	5
On my job, I have a lot of freedom to decide how I work	1	2	3	4	5
I have a lot of say about what happens on my job	1	2	3	4	5
All in all I am satisfied with my job	1	2	3	4	5
I enjoy the work I do at my job	1	2	3	4	5
In general, I like working at my job	1	2	3	4	5
Exercise is common among members of my workplace	1	2	3	4	5
The people at work encourage each other to stay physically fit	1	2	3	4	5
People at work are interested in my pursuit of the marathon	1	2	3	4	5
My workplace supports and encourages my running	1	2	3	4	5
It's easy to find people at work interested in talking about running	1	2	3	4	5

Instructions: Please circle your answer regarding the following questions about your personality.					
I see myself as someone who...					
Makes plans and follows through on them	1	2	3	4	5
Worries a lot	1	2	3	4	5
Can be tense	1	2	3	4	5
Does a thorough job	1	2	3	4	5
Can be moody	1	2	3	4	5
Perseveres until the task is finished	1	2	3	4	5
Does things efficiently	1	2	3	4	5

Is depressed, blue	1	2	3	4	5
Gets nervous easily	1	2	3	4	5
Is a reliable worker	1	2	3	4	5

<i>Instructions: We would like to know if you have any medical complaints, and how your health has been in general, over the past few weeks. Have you recently ...</i>	Not at all	No more than usual	Rather more than usual	Much more than usual
Lost much sleep	1	2	3	4
Felt constantly under stress	1	2	3	4
Felt unable to overcome difficulties	1	2	3	4
Felt unhappy and depressed	1	2	3	4
Lost confidence	1	2	3	4
Thought of self as worthless	1	2	3	4

Gender (circle): Male/Female **Marital Status** (circle): Single/Married or with Partner **Number of Children:** _____

On average, how many hours per week do you: **work at home or on the job?** _____hrs **run?** _____hrs **lift weights?** _____hrs

Are you involved with an organized training group (i.e., do you have a consistent group of people that you meet with each week to train with)? Yes _____ No _____. If so, is the group sponsored by your employer? Yes _____ No _____.

Where do you do the majority of your training runs (*circle*)? Treadmill Roads Trails Other (specify): _____

How many marathons have you completed? _____ If at least one, please indicate:

Your previous **best** time: _____h _____m Your previous **worst** time: _____h _____m

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