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**Groff, W. Brandon. *What Makes Us Satisfied (or not) at work?***

**Abstract**

Since the increase in the utilization of technology, organizations have more sedentary employees. Increased physical activity can help individuals lead healthier lives and improve mental health such as less depression, anxiety, and stress. Therefore, organizations should seek to use this information to improve the health of their employees. Exercise has also shown to be positively associated with job satisfaction which has many robust findings for organizational-outcomes (e.g. less turnover, better performance). The purpose of this study is three-fold: 1) to examine if exercise is related to job satisfaction, 2) to determine if exercise can predict job satisfaction more than constructs such as job involvement, organizational commitment and stress, and 3) to determine if exercise intensity is important in predicting job satisfaction. A sample of 186 full-time workers from University of Wisconsin-Oshkosh completed an online Qualtrics survey that contained questions about job satisfaction, physical activity, organizational commitment, job involvement, perceived stress, and basic demographic questions. Results showed that total exercise was negatively correlated with job satisfaction, and organizational commitment and perceived stress predicted job satisfaction in the expected direction. However, neither job involvement, total exercise or exercise intensity predicted job satisfaction.

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## Chapter I: Introduction

Exercise has many psychological benefits (e.g., lower levels of depression [Harris, Cronkite, & Moos, 2006], anxiety [McMahon, 2017], and stress [Park, 2014]). These findings are important in an organizational context since they are linked to work outcomes that benefit organizations. For example, Goswami (2015) found that employees who experience more stress from factors associated with their job roles, such as work overload, experienced more anxiety. Further, these individuals also tended to have lower job satisfaction and poorer performance (Goswami, 2015). There are also findings that suggest that exercise may be associated with job satisfaction (e.g., Bogaert, D-Martelaer, Deforche, Clarys, & Zinzen, 2014; Frew & Bruning, 1988).

Despite the studies listed above, findings from other studies conclude a null relationship between exercise and job satisfaction (e.g., Cheema et al., 2013). This discrepancy is rather judicious to explore because it could potentially impact organizations utilizing exercise to increase positive work-related outcomes (e.g., job satisfaction). Therefore, this research study aims to explore three major research questions regarding the potential value of exercise as it relates to our experience at work: 1) whether exercise is related to job satisfaction, 2) whether exercise can predict job satisfaction beyond other predictors such as job involvement, organizational commitment, and stress, and 3) whether exercise intensity is predictive of job satisfaction. See Figure 1.

### **Theoretical Basis: Herzberg's Two-Factor Theory**

There are a variety of factors that can affect employee job satisfaction. The theoretical foundation for this paper utilizes Herzberg's two factor theory (Herzberg, Mausner, & Snyderman, 1993). This theory proposes that there are factors that lead to job satisfaction

(motivators), and there are factors that lead to job dissatisfaction (hygiene; [Herzberg et al., 1993]). Herzberg's (Herzberg et al., 1993) two factor theory emerged from a time when many researchers believed money was the sole motivator for employees' job satisfaction. However, Herzberg and others did not fully agree with this notion (Bernold & Abourizk, 2010). The motivator and hygiene factors both play a very important role in the workplace, but differently influence employees' experiences (Bernold & Abourizk, 2010). Motivating factors lead an employee to experience more positive emotions because they feel more self-actualized, which in turn, can influence other organizational outcomes (Herzberg et al., 1993; Miner, 2007). These include motivating factors such as achievement or personal growth and are usually associated with the work of the employee (Bernold & Abourizk, 2010; Herzberg et al., 1993). For example, if an employee perceives she has more responsibility in her job, then she will experience more positive attitudes. The premise of these factors is that certain aspects of an employee's work life lead him or her to experience more positive emotions. For instance, employees who feel they have had personal growth will, in turn, have more positive emotions and attitudes about their jobs (Herzberg et al., 1993; Tietjen & Myers, 1998).

The hygiene factors, in contrast, *indirectly* influence an employee's satisfaction with his or her job (Herzberg et al., 1993). Employee benefits and supervision fall into this category (Miner, 2007). Rather than a direct influence like motivating factors, hygiene factors simply keep dissatisfaction at bay (Herzberg et al., 1993). Additionally, since these hygiene factors do not directly influence job satisfaction, they do not have the capacity to ensure that employees generate those positive emotions which lead to job satisfaction. For example, if employees experience poor working conditions (e.g., small offices), then they may be dissatisfied with their jobs. However, if an employee gets a bigger office, this does not mean that she will become

satisfied with her job. Therefore, organizations should integrate motivators and hygiene factors into their employees work life to ensure they are satisfied (Miner, 2007).

### **The Importance of Job Satisfaction in the Workplace**

Job satisfaction is a term that has been widely researched because of its impact on numerous work-related outcomes such as job performance and turnover intention (Hochwarter, Perrewé, Ferris, & Brymer, 1999). It is broadly defined as the emotional response of an employee in regard to his or her job (Brief & Weiss, 2002). Other researchers have examined dimensional models of job satisfaction (e.g., Job Descriptive Index [Smith, Kendall, & Hulin, 1969]), the Minnesota Satisfaction Questionnaire [Weiss, Dawis, England, & Lofquist, 1967]). Spector's (1985) 9-dimension model will be utilized here. The dimensions he described include: Pay, Promotion, Supervision, Fringe Benefits, Contingent Rewards, Operating Procedures, Coworkers, Nature of Work, and Communication (Spector, 1985). Each of these aspects represents the extent to which an employee is satisfied with a particular dimension of his or her work.

There are many job characteristics such as stress (Judge, Ilies, & Zhang, 2012), job involvement (Li, Lin, & Chen, 2007), and organizational commitment (Fu & Deshpande, 2014) that impact an employee's experience of job satisfaction. For example, Halepota and Shah (2011) surveyed 200 full-time employees who worked in a medical field in Pakistan regarding various work constructs (e.g., job satisfaction, job clarity/training and procedural justice). The researchers found that how organizations structure their processes for administering rewards or punishments impacts employees' perceptions of fairness, which affects the satisfaction they have with their jobs in the organization (Halepota & Shah, 2011). Research has also shown that the extent to which employees have autonomy in their positions will influence satisfaction with their

jobs (Koustelios, Karabatzaki, & Kousteliou, 2004). Additionally, role clarity has also been shown to positively relate to job satisfaction (Almutairi, 2013).

As mentioned above, job satisfaction is related to many important organizational outcomes. For example, Hochwarter et al. (1999) gathered information regarding affect, attainment, job satisfaction, and job performance from 270 managerial incumbents after work meetings. The researchers found that as employees' job satisfaction increased, so did their job performance (Hochwarter et al., 1999). Job satisfaction can also reduce turnover intent in organizations (Delobelle et al., 2011). Delobelle and colleagues (2011) surveyed 143 primary health care nurses on job satisfaction and turnover intent. The researchers found that nurses who were more satisfied with their jobs also tended to have lower turnover intent (Delobelle et al., 2011). Job satisfaction can also affect job burnout. For instance, Piko (2006) explored job satisfaction levels and employee job burnout. The researcher administered 201 questionnaires regarding job satisfaction and job burnout to hospital employees in Szeged, Hungary (Piko, 2006). The results showed that job satisfaction negatively predicted job burnout (Piko, 2006). Sage (1998) gathered data from 140 municipality workers in Israel and found that employees who were more satisfied with their jobs had fewer voluntary absences. Job satisfaction not only has a positive impact on negative work outcomes such as turnover intent, but it also affects positive job outcomes such as employees' involvement in their jobs (Sage, 1998). Employees who are more satisfied with their jobs are also more likely to identify with their jobs and be more involved (Khan, Abbas, Gul, & Raja, 2015; Wegge, Schmidt, Parkes, & Dick, 2007). For instance, Khan and colleagues (2015) surveyed 182 employees who worked in a private university teaching hospital. The researchers found that job satisfaction was positively related to job involvement (Khan et al., 2015). Additionally, Wegge and colleagues (2007) gathered survey

data on job satisfaction, job involvement and absences over 12 months from 436 German civil service employees during their work hours (Wegge et al., 2007). The researchers found that employees who were more satisfied with their jobs were also more involved in their jobs (Wegge et al., 2007). Given the organizational outcomes associated with job satisfaction, it is vital to further explore which constructs are related to it. One promising predictor, as mentioned above, may be exercise. The first question of interest examines research linking job satisfaction and exercise.

### **An Understudied Construct in the Workplace: Physical Activity**

Physical activity has been broadly defined by the American Heart Association (n.d., 2015) as any and all physical movements which cause one's body to expend energy and use more calories. Physical activity, such as exercise, has been widely researched in the past due to the positive impact it has on stress, anxiety, and depression (Harris et al.; McMahon, 2017; Park, 2014) Individuals who engage in exercise tend to experience many positive benefits. For example, Harris and others (2006) found that individuals who participated in more physical activity had lower levels of depression compared to their sedentary counterparts. Additionally, Belvederi and colleagues (2015) similarly found that exercise significantly reduced participants' scores on depression scales and had a larger effect over those who only took anti-depressants. Equally important, physical activity can also impact anxiety levels in individuals. McMahon (2017) found that individuals who participated in more frequent bouts of physical activity had less anxiety. Lindwall and colleagues (2014) also examined this relationship. The researchers administered a survey regarding mental health (e.g., anxiety, depression) and physical activity to 3,717 health care workers in Sweden over six years. Lindwall et al. (2014) found that individuals who were more physically active had less anxiety. Relatedly, Park (2014) administered an online

survey regarding physical activity and stress levels to adolescents in Korea. The researcher found that individuals who were more physically active had less perceived stress (Park, 2014).

Of particular interest in the current study is whether or not there is a connection between exercise and job satisfaction. Although there is extensive research exploring organizational predictors of job satisfaction, we know less about the possible relationship between exercise and job satisfaction. However, there has been a shift in the attractiveness of this research because of the major implications physical activity has on various positive health behaviors in and out of the workplace, and researchers have recently begun to consider whether exercise is related to positive employee outcomes. Lecheminant, Merrill, and Masterson (2015) found that school employees who exercised as part of work-based wellness programs had significantly higher job satisfaction. Blake, Zhou, and Batt (2013) administered a pre-and-post-survey to 1,134 employees who worked in national health service positions regarding physical activity levels, job satisfaction, and various other facets (e.g., perceived health/mood/work performance). The researchers found that the more active employees were, the more satisfied they were with their jobs (Blake et al., 2013). Similarly, Norvell, Belles, and Beutler (1993) explored an experimental circuit weight training intervention to discover if there were any psychological benefits from exercising. Participants underwent the circuit training intervention of lifting weights for 20 minutes, three days a week, for 16 weeks. The researchers found that in their experimental trial for circuit weight training, individuals in the treatment condition had an increase in job satisfaction compared to the control condition. Bogaert et al. (2014) focused on a different aspect and explored whether exercise had any relation to work-related variables and mental health of secondary school teachers. The researchers found that employees who had better physical health also tended to have higher job satisfaction (Bogaert et al., 2014)

Employees who are offered memberships and utilize corporate sponsored health clubs may also be more satisfied with their jobs. Daley and Parfitt (1996) examined job satisfaction, physical and mental health of employees of a British retail food company. The researchers found that individuals who were part of the health club had better physical and mental health and were more satisfied with their jobs compared to the employees who were not members of the fitness club, or were on a waiting list to join the club (Daley & Parfitt, 1996). Job satisfaction can also be affected by individuals exercising on their own time. For instance, Frew and Bruning (1988) examined a training intervention and the impact it had on job satisfaction. Specifically, they instructed participants to exercise on their personal time for 30 to 45 minutes a day either walking, running, or swimming. They were also instructed to exercise for at least four times a week for 24 weeks. They also had monthly check-ins to track progress of the participants. The researchers found that the individuals in the exercise group had significant increases in their level of job satisfaction at the end of the program compared to their initial levels.

Herzberg's Two-Factor theory of Job Satisfaction (Herzberg et al., 1993) suggests that employees who choose to exercise will be more satisfied with their jobs because they have the autonomy to choose to partake in physical activity which satisfies their need for achievement (motivating factor) and allows them to experience more positive emotions. Studies by Frew and Bruning (1988) and Bogaert et al. (2014) showed that exercise was significantly positively related to job satisfaction, which aligns well with Herzberg's theory (Herzberg et al., 1993). Therefore, the following hypothesis attempts to replicate the overall positive association between exercise and job satisfaction. See figure 1.

H1: Exercise is positively related to job satisfaction.

## **Does Exercise Predict Job Satisfaction Beyond Other Variables?**

Job satisfaction has been shown to have major implications for work related outcomes (Piko, 2006; Sage, 1998; Wegge et al., 2007). It has also been shown to be significantly positively related to job satisfaction (Frew & Bruning, 1988). Additionally, although a variety of individual correlates of job satisfaction have been heavily explored (Flanagan & Flanagan, 2002; Fu & Deshpande, 2014; Hombrados-Mendieta, & Cosano-Rivas, 2013; Newman, Nielsen, Smyth, & Hooke, 2015), three commonly-examined variables are utilized here (organizational commitment, job involvement, and stress), and are compared with the new variable of exercise.

### **Organizational Commitment**

The first variable considered here is organizational commitment. Organizational commitment refers to the different internal or external matters that keep an employee from leaving an organization (Dwivedula & Bredillet, 2010). Organizational commitment has been shown to have an important impact on a variety of work-related outcomes. For example, employees who are more committed to their organizations are more motivated (Meyer et al., 2004) and more likely to exhibit more organizational citizenship behaviors (Chun, Shin, & Kim, 2013). Employees are also more inclined to stay with an organization because they feel greater emotional attachment to it (Sawalha, Zaitouni, & ElSharif, 2012), have a stronger commitment to the team(s) they work with (Singh & Gupta, 2015), have higher job involvement (Singh & Gupta, 2015), and are less likely to voluntarily leave the organization (Sawalha et al., 2012). Of interest in the current study is the relationship organizational commitment has with job satisfaction.

A positive relationship of organizational commitment and job satisfaction has been found very frequently in past research (e.g., Chan & Qiu, 2011; Chang, 2015; Fu & Deshpande, 2014;

Singh & Gupta, 2015). For example, Singh and Gupta (2015), and Macintosh and Krush (2014) examined the relationship between the two constructs by administering an online survey to real-estate sales employees. The researchers found that job satisfaction and organizational commitment had a significant positive association (Macintosh & Krush, 2014). Neubert and Halbesleben (2015) also examined job satisfaction and organizational commitment. The researchers believed that employees who chose to exercise would be more satisfied with their jobs because they had the autonomy to choose to partake in physical activity. Moreover, this satisfied their need for achievement (motivating factor) and allowed them to experience more positive emotions which, in turn, Herzberg and colleagues (1993) argued would lead to job satisfaction. Neubert and Halbesleben (2015) also explored the relationship between job satisfaction and organizational commitment. They recruited 771 adults in the United States and administered a job satisfaction and organizational commitment survey. The results of their study indicated that job satisfaction and organizational commitment had a significant positive relationship (Neubert & Halbesleben, 2015). This finding seems to be rather robust.

Organizational commitment is important for organizational consideration. The extent to which an employee is satisfied with her job can be predicted by how committed she is to the organization. Herzberg et al. (1993) argued that when employees are committed to their organizations, they may undergo a feeling of growth (motivating factor). In turn, the experience of growth can evoke positive emotions, which leads to job satisfaction. For example, Tillman, Smith, and Tillman (2010) found that employees who were more satisfied with their co-workers were also more satisfied with their jobs. The employees' positive relationships they had with their co-workers positively impacted their decision to stay with an organization, which, in turn, allowed them to be more satisfied with their jobs. In support of the two-factor theory of job

satisfaction (Herzberg et al., 1993), Johnson and Johnson (2000) found that employees who experienced more positive affectivity also experienced more job satisfaction. Employees who experienced more positive emotions (which aligns with organizational commitment) also tended to be more satisfied with their jobs. In sum, employees who chose to stay with their organizations experienced more positive emotions. In line with previous research (e.g., Chang, 2015; Chan & Qiu, 2011; Fu & Deshpande, 2014; Macintosh & Krush, 2014; Singh & Gupta, 2015) the following hypothesis aims to replicate a positive relationship between organizational commitment and job satisfaction:

H2: Organizational commitment is a significant predictor of job satisfaction.

### **Job Involvement**

Job involvement is another variable associated with job satisfaction. Job involvement is defined as “the degree to which a person is identified psychologically with his work, or the importance of work in his total self-image” (Lodahl & Kejner, 1965, p. 24) Wegge and colleagues (2007) took interest in the relationship and administered a survey during work hours regarding job involvement, job satisfaction and absences to 436 employees from a civil service organization in Germany. The researchers found that job satisfaction was significantly associated with job involvement such that employees who were more satisfied with their jobs were more likely to identify with their jobs and be more involved (Wegge et al., 2007). The association between job satisfaction and job involvement was also supported by Khan and colleagues (2015), who used a sample of employees who worked in a private hospital in Pakistan, and by Li et al. (2007), who used a sample of community health promotion volunteers.

The relationship between job involvement and job satisfaction has also been found to be very robust (Khan et al., 2015; Li et al., 2007; Wegge et al., 2007). Additionally, the empirical

research also aligns well with the two-factor theory of job satisfaction (Herzberg et al., 1993). For example, employees who feel more involved with their jobs (job involvement) can have an intrinsic attachment to their jobs (motivating factor) which increases their satisfaction with their jobs. Therefore, in line with previous research by Wegge and others (2007), Khan and colleagues (2015), and Li and colleagues, (2007), the following hypothesis is made:

H3: Job involvement is a significant predictor of job satisfaction.

### **Stress**

It is important to acknowledge that job satisfaction can be affected not only by desired work-related outcomes (e.g., job involvement and organizational commitment), but it can also be influenced by negative work outcomes, which are related to dissatisfaction with work. Stress is one factor that can affect many different aspects of an individual's life. It can also have an especially negative impact on an employee's work environment. Stress can be defined as "the non-specific response of the human body to any demand made on it" (Selye, 1974, p. 27). There are three components of the stress experience. First, a (1) stressor is anything that causes a (2) stress reaction (Selye, 1956). For example, if an employee has an ambiguous job role, this can cause the employee to experience stress since he is unsure of his responsibilities. Job strain (3) is apparent when an individual experiences an immense amount of stress, and she does not have the capacity to fully control the situation or prevent it from occurring (Belkić & Savić, 2013). Past research has shown a significant negative association between job satisfaction and stress, meaning that employees who have higher levels of stress tend to be more dissatisfied with their jobs (Hayes, Douglas, & Bonner, 2015; Judge et al., 2012).

Stress can be conceptualized as a hygiene factor within the two-factor theory (Herzberg et al., 1993) since it is an aspect of the work environment that affects the extent to which

employees are dissatisfied with their jobs. Herzberg's theory suggests that the hygiene factors are the aspects of a job that influence job dissatisfaction (Bernold & Abourizk, 2010; Herzberg et al., 1993; Miner, 2007). Empirical evidence supports this logic. Stress has been shown to have a negative relationship with job satisfaction (e.g., Flanagan & Flanagan, 2002). For instance, Flanagan and Flanagan (2002) surveyed 287 prison nurses in the United States and found that there was a converse relationship with stress. This finding has been found to be very robust in that stress has had a consistent negative relationship with job satisfaction (Fiori, Bollmann, & Rossier, 2015; Flanagan & Flanagan, 2002; Klassen & Chiu, 2010). Klassen and Chiu (2010) also gathered survey data regarding job satisfaction, stress, and self-efficacy from 1,500 school teachers in Canada. Their results showed that teachers with high levels of teaching stress had higher levels of job dissatisfaction (Klassen & Chiu, 2010). In support of earlier research mentioned above, Fiori et al. (2015) also sought to investigate the relationship between job satisfaction and stress. The researchers gathered 1,671 participants from the Swiss Federal Statistics Office and found a negative relationship between job satisfaction and stress levels at both times, indicating that as job satisfaction increased, the level of job stress decreased (Fiori et al., 2015). These findings and the theoretical foundation of the two-factor theory aid in support for the following hypothesis (see figure 1).

H4: Stress is a significant negative predictor of job satisfaction.

The second research question broadens our understanding by exploring whether or not exercise predicts job satisfaction above and beyond these three well-studied predictors. The rationale for this prediction is that employees have the capacity to seek out other/additional opportunities to increase their job satisfaction beyond basic work-related variables such as organizational commitment. Employees can increase their satisfaction with their jobs beyond

simply relying on relationships in their organization or stress levels. Exercise can be conceptualized as a motivator because previous research has also shown that exercise significantly predicts higher levels of job satisfaction (Bogaert et al., 2014; Frew & Bruning, 1988). Therefore, exercise should ideally have a bigger impact in predicting job satisfaction levels beyond the other constructs of interest. Therefore, the following hypothesis is made.

H5: Exercise explains additional variability in job satisfaction beyond organizational commitment, job involvement, and stress.

The third and final research question of this study will explore whether intensity of exercise predicts job satisfaction.

### **Does Intensity of Physical Activity Matter?**

When delineating between moderate and vigorous exercise intensity, the United States Department of Health and Human Sciences (USDHHS, 2008) notes that when individuals partake in physical activity, there is a certain amount of energy that is consumed, which will be denoted as metabolic equivalent. The metabolic equivalent is a ratio between how much energy is used in physical activity versus how much energy is used while resting. The USDHHS (2008) also explains that the most benefits from exercising come from individuals who exercise for 150 to 420 minutes of moderate intensity in the course of a week. As the individuals increase their time from 150 minutes, they also receive more widespread benefits (USDHHS, 2008). Additionally, the USDHHS (2008) recommends that to receive the most physical benefits, individuals should spread their exercising across a minimum of three days. The USDHHS (2008) does posit that individuals can do a combination of both intensities to receive the benefits. Moreover, individuals can determine their level of intensity for their activity by judging if they can talk or sing (USDHHS, 2008) while engaging in the activity. For instance, an individual who

is participating in moderate activity they should be able to talk with a fellow exerciser. However, they should not have the capacity to sing. Conversely, if an individual is participating in vigorous intensity activities, they should only be able to muddle a couple words before they have to focus their attention on making sure they breathe (USDHHS, 2008).

The research between job satisfaction and physical activity seem to be mixed. For example, Cheema et al. (2013) explored yoga to see if there were any physical or psychological benefits. The researchers had participants partake in a yoga session during their lunch break for 50 minutes, three days a week. They found that their experimental yoga classes did not have a significant effect on job satisfaction compared to their control group. One reason to explain this is that the participants did not engage in an activity which increases their heart rate to meet the guidelines of either moderate or vigorous activity. Moreover, Bale, Gazmararian, and Elon (2015) also found no significant difference for employees taking time at work to exercise. However, in both studies, participants' job satisfaction scores at baseline were already relatively high, which could have been the reason they did not become more satisfied with their jobs.

It is important to have a better understanding of what exercise intensity and frequency must be met in order to see the psychological benefits of exercise (e.g., job satisfaction). This has been a frequent limitation in past research. For example, in the Cheema et al. (2013) study, participants practiced yoga three days per week, but yoga may not be classified as an aerobic activity because it does not elevate the individuals' heart rates high enough to get the benefits of exercise. This needs to be explored in order to find a threshold in which individuals gain the benefits of physical activity. For example, Norvell et al. (1993) had individuals participate in a circuit weight training intervention for 20 minutes for three days a week. The frequency may be the same as Cheema and colleagues (2013). However, the biggest difference comes from the

intensity of the physical activity. Norvell and colleagues (1993) utilized a circuit training method which emphasized less rest and higher intensity of the workout, which explains why the physical activity was only 20 minutes long. However, even with this short exercise bout, Norvell and others (1993) did find a significant effect of exercising on job satisfaction.

This paper aims to bridge the gap of frequency and intensity of exercise that needs to be done in order for an employee to ideally be more satisfied with his or her job, barring any external unusual life circumstance which would hinder the employee's satisfaction unrelated to exercise habits. This is in line with what the USDHHS (2008) has set for the guidelines of exercise intensity and physical/psychological benefits. For example, the USDHHS (2008) stated that an individual may gain the same benefits of partaking in less time by engaging in higher intensity workout (e.g., vigorous) than a longer low intensity workout (e.g., moderate). Additionally, an individual will experience more benefits from engaging in more mixed (moderate and vigorous) intensity workouts (USDHHS, 2008). This can be used to explain why Cheema and colleagues (2013) did not find a significant effect in job satisfaction since the participants were not engaging in an exercise that has a high enough intensity.

Utilizing Herzberg's two-factor theory of job satisfaction (Herzberg et al., 1993), exercise should be noted as a motivating factor. The exercise intensity is important to consider because it allows for the ability to bridge the gap between inconsistent findings in the past. For instance, Cheema et al. (2013) found their experimental yoga condition during work time did not have a significant impact on job satisfaction. One reason why the researchers may have found no effect on job satisfaction levels could be due to the fact the exercise condition did not elevate the heart rate enough to experience the full benefits. When exercise intensity is low, it can be conceptualized as more of a hygiene factor due to the exercise having no effect on job

satisfaction. However, once the intensity rises, exercise can be considered a motivating factor. For instance, for the studies that showed a significant relationship between exercise on job satisfaction, exercise was at a higher intensity. This aligns with the Cheema et al. (2013) lack of findings given the low-intensity exercise. In line with Herzberg's two factor theory (Herzberg et al., 1993), low intensity exercise may act as a hygiene factor by keeping job dissatisfaction at bay, where higher intensity exercise increases job satisfaction and is a motivating factor. The current study aims to explain at what exercise intensity an individual would have to meet to gain the benefit of greater job satisfaction.

H6: Exercise intensity positively predicts job satisfaction.

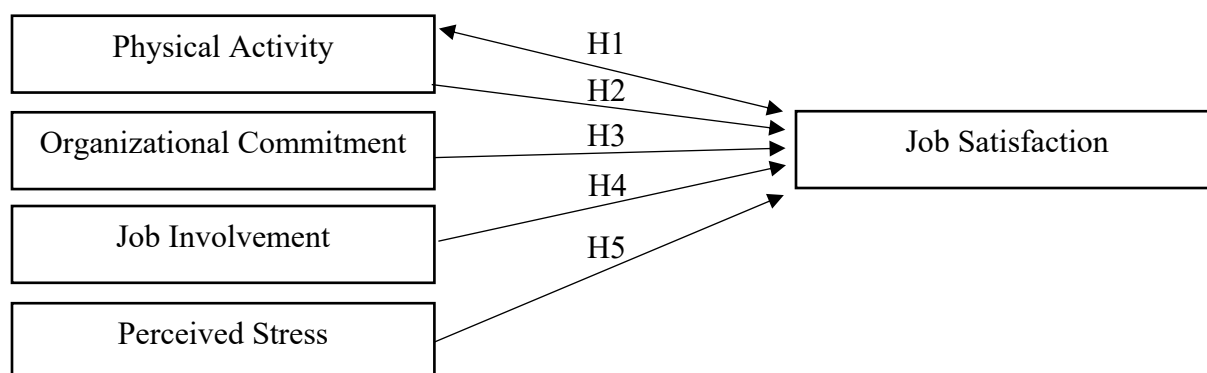


Figure 1. Proposed model of relationships among study variables.

## Chapter II: Method

A survey was administered utilizing Qualtrics for this research study. After the research proposal was approved by the Institutional Research Board (IRB) of the University Wisconsin – Stout, the researcher collaborated with the University Wisconsin – Oshkosh (UW-Oshkosh) to obtain a sample of full-time faculty and administrative staff at the specific campus. An invitation email was sent out by UW-Oshkosh’s IRB to all faculty and administrative staff at the campus. Two weeks after the initial email invitation was sent, a follow up email invitation was sent. The individuals who chose to partake in the survey were entered into a drawing in which they could win a \$15 Visa gift card for compensation. Procedure

After viewing a consent form, participants were invited to complete the survey. If the employee declined, he or she was automatically directed to the end of the survey. To avoid order effects, items were administered in a counterbalanced fashion. Upon completion, participants were invited to enter their names in a drawing for the gift card.

### Participants

Utilizing the **UW-Oshkosh’s campus**, 186 employees elected to participate in the study. Of the participants who reported gender, the majority of them were female (78%). The average age of participants was 44.88 years old ( $SD = 12.42$ ). There were 174 White employees, 3 American Indian or Alaska Native employees, 2 African American or Black employees, and 3 Asian employees.

In regard to job classification demographics, all 186 participants were full time employees at UW-Oshkosh. There were 120 administrative staff employees and 55 faculty members. Of the faculty members, 25 of them reported being a tenured professor. The average number of years the employees have been with university was 9.43 ( $SD = 9.01$ ).

## Measures

A 90-item survey, containing five preexisting measures, and seven demographic questions was administered to UW-Oshkosh Employees via Qualtrics.

**Job satisfaction.** The Job Satisfaction Survey was used to measure job satisfaction. The job satisfaction survey is a 36-item survey developed by Spector (1985) that assesses the satisfaction employees have with their jobs. All of the 36 items in job satisfaction survey were measured on 5-point agreement scales. All of the items ranged from 1 = strongly disagree to 5 = strongly agree. There were 16 negatively worded items which were record accordingly. An average was taken together to produce a job satisfaction score for each respondent. One example item from job satisfaction survey is, “I feel unappreciated by the organization when I think about what they pay me.” Cronbach’s alpha for the Job Satisfaction subscale was .93 (see Appendix A).

**Organizational commitment.** The organizational commitment questionnaire was developed by Mowday, Steers, and Porter’s (1979). All 15 items were on a 5-point scale which ranged from 1 = strongly disagree to 5 = strongly agree. The scale had 6 items which are worded negatively and recoded accordingly. All items were averaged together to create a composite total score of their organizational commitment which falls on a continuum of higher scores meaning higher organizational commitment. An example item from the organizational commitment questionnaire is, “I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.” Cronbach’s alpha was .92 (see Appendix B).

**Exercise.** The international physical activity questionnaire was used to measure physical activity. The short version of the international physical activity questionnaire is a 7-item questionnaire designed to measure various physical activity levels (vigorous, moderate, and

walking) in the last 7 days. An example item from the international physical activity questionnaire is, “During the last 7 days, on how many days did you do vigorous physical activities?” (see Appendix C). The items were self-report and examined the number of days per week and amount of time (hours and minutes) an individual spent exercising. The items which examined the number of days per week ranged from 0-7 = days a week exercising. The items that examined the amount of time per day spent exercising ranged from 0-16 = hours per day and 0-960 = minutes per day. Each level of exercise intensity is asked about separately.

All responses were then converted into metabolic equivalent minutes to determine the amount of energy required to perform each exercise at each level (e.g., moderate). The metabolic equivalent is a ratio that explains how much energy is expended when an individual engages in physical activity. The formula for metabolic equivalent for walking is 3.3 multiplied by the number of actual minutes spent exercising per day multiplied by the number of days in the week spent exercising. The formula of metabolic equivalents for moderate activity is 4.0 multiplied by the number of actual minutes spent exercising per day multiplied by the number of days in the week spent exercising. The formula for vigorous intensity activity is 8.0 multiplied by the number of actual minutes spent exercising per day multiplied by the number of days in the week spent exercising. In addition to computing metabolic equivalent minutes for each intensity level separately, a total score for exercise was computed by summing together all metabolic equivalents for each of the three exercise intensities. The CDC defines light intensity activity ranging from 1.1 to 2.9 metabolic equivalents. They define moderate intensity as 3.0 to 5.9 metabolic equivalents and vigorous intensity as 6.0 to 10 metabolic equivalents. The CDC posits that in order for individuals to gain benefits from exercising, they must complete at least 500 to 1000 metabolic equivalent minutes per week.

**Job involvement questionnaire.** The job involvement questionnaire is a 10-item item questionnaire developed by Kanungo (1982) which aims to examine the extent to which an employee is involved with his or her specific job. Items were on a 5-point Likert type scale which ranged from 1 = strongly disagree to 5 = strongly agree. Two of the items in the questionnaire were negatively worded and were recoded accordingly. All items were averaged to create a total job involvement score, which falls on a continuum where higher scores mean higher job involvement. An example item from the questionnaire is “I am very much involved personally in my job.” Cronbach’s alpha was .75 (see Appendix D).

**Perceived stress scale.** The perceived stress scale was used to measure perception of stress. The perceived stress scale is a 10-item scale developed by Cohen, Kamarck, and Mermelstein (1983) which aimed to measure the perception in the last month. An example from the scale is “In the last month, how often have you felt that things were going your way?” Items were rated on a 5-point scale. All of the items ranged from 0 = never to 4 = very often. Each item in the scale was averaged to create a composite on a continuum of low to high perceived stress. Item number 8 was removed from the subscale to improve Cronbach’s alpha. The Cronbach’s with item 8 removed was .74 (see Appendix E).

**Demographics.** These items consisted of basic descriptive information (e.g., age, gender, race) and also collected data on work related information such as employment type (faculty or administrative staff), length of employment at the current institution, and whether the faculty member was tenured or not (see Appendix F).

### Chapter III: Results

After cleaning, there were 186 participants who remained in the sample. Pearson's bivariate correlation was utilized to examine the relationships between the exercise, job involvement, organizational commitment, stress and job satisfaction. Simultaneous multiple regression analyses were conducted to examine the predictability of total exercise and job satisfaction and moderate or vigorous exercise and job satisfaction.

#### Data Cleaning

A total of 256 participants initially began the survey. Those who did not complete any of the questions beyond the consent item, did not answer the question regarding full-time employment status, indicated part-time employment, did not respond to two or more of the questionnaires, or reported their total exercise to be over 960 minutes, were removed from analyses. After cleaning the data, 186 participants were retained for further analyses.

#### Descriptive Statistics

All of the variables, except exercise, examined in the current study were measured on 5-point scales. The average score for job satisfaction was 3.20 ( $SD = 0.56$ ), job involvement was 2.94 ( $SD = 0.57$ ), perceived stress was 2.81 ( $SD = 0.41$ ), and organizational commitment was 3.45 ( $SD = 0.68$ ). In regard to the exercise variables in the current study, the average score for metabolic equivalent minutes for vigorous, moderate, and walking were as are displayed in table 1. A correlation matrix displaying the associations between variables measured in the current study is presented in Table 2.

Table 1

*Means and Standard Deviations for Exercise Variables*

	Hours and Minutes	Metabolic Equivalent Minutes	
	<i>M</i>	<i>M</i>	<i>SD</i>
Walking	4 H and 15 M	1,019.37	1,092.85
Moderate Exercise	3 H and 4 M	735.73	864.32
Vigorous Exercise	2 H and 39 M	1,277.62	1,670.90
Total Exercise	5 H and 49 M	2,559.60	2,393.44

Table 2

*Pearson's Correlations Among Study Variables*

	N	M	SD	1	2	3	4	5	6	7	8
1. Metabolic Equivalent Minutes for Total Exercise	179	2,559.60	2,393.44	--							
2. Metabolic Equivalent Minutes for Vigorous Exercise	178	1,277.62	1,670.90	.87**	--						
3. Metabolic Equivalent Minutes for Moderate Exercise	164	735.73	864.32	.68**	.52**	--					
4. Metabolic Equivalent Minutes for Walking	108	1,019.37	1,092.85	.72**	.37**	.20*	--				
5. Perceived Stress	181	2.81	0.41	.01	.00	-.03	-.07	(.74)			
6. Job Involvement	183	2.94	0.57	-.07	-.07	-.01	-.07	-.02	(.75)		
7. Organizational Commitment	181	3.45	0.68	-.24**	-.09	-.17*	-.30**	-.35**	.29**	(.92)	
8. Job Satisfaction	182	3.20	0.56	-.18*	-.14	-.17*	-.18	-.47**	.17*	.70**	(.93)

*Note.* \* $p < .01$  level, \*\* $p < .001$  level. Reliability scores for each measure are presented on the diagonal.

## Hypothesis Testing

The first hypothesis predicted that job satisfaction would be positively associated with total exercise. A Pearson's correlation was run to test the first initial hypothesis, which revealed a significant negative relationship between job satisfaction and metabolic equivalent minutes for total exercise,  $r = -.18, p = .018$  (see Table 2). Therefore, the first hypothesis was not supported.

Hypotheses 2-5 utilized a simultaneous multiple regression. The regression model was tested before any output was analyzed to ensure the assumptions of homoscedasticity and normality of residuals were not violated. A P-P Plot was created for residuals and predictors in the regression model to test the assumptions, which indicated these assumptions were met. Additionally, collinearity tests also did not indicate any multicollinearity issues.

The regression model for hypotheses 2-5 accounted for 56% of the total variance on job satisfaction  $R = .75, F(4, 171) = 55.12, p < .001$  (See Table 3). Total exercise did not positively predict of job satisfaction (H2;  $\beta = -.04, p = .495$ ). However, organizational commitment was shown to positively predict job satisfaction, (H3;  $\beta = .62, p < .001$ ). Hypothesis four was tested to determine if job involvement would positively predict job satisfaction, and was not supported ( $\beta = -.02, p = .708$ ). Hypothesis five was tested to determine if perceived stress would negatively predict job satisfaction, and was supported ( $\beta = -.26, p < .001$ ).

Table 3

*Multiple Regression Predicting Total Exercise, Organizational Commitment, Job Involvement, Perceived Stress on Job Satisfaction*

Variable	B	SE	$\beta$
Intercept	2.51	.32	
Total Exercise	-8.29	.00	-.04
Org Commitment	.51	.05	.62**
Job involvement	-.02	.05	-.38
Perceived Stress	-.35	.07	-.26**

N = 175, Notes.  $R^2 = .56$ , Adjusted  $R^2 = .55$ . \* $p < .01$ , \*\* $p < .001$ .

Lastly, the sixth hypothesis predicted that exercise intensity would be a positive predictor of job satisfaction. An additional multiple regression model was run to test the sixth hypothesis. This model regressed vigorous exercise and moderate exercise onto job satisfaction and accounted for .02% of the variance for job satisfaction  $R = .19$ ,  $F(2, 158) = 2.89$ ,  $p = .059$  (See Table 4). However, neither moderate exercise ( $\beta = -.13$ ,  $p = .147$ ), nor vigorous exercise ( $\beta = -.08$ ,  $p = .373$ ) significantly predicted job satisfaction. Therefore, the sixth hypothesis was not supported. See table 4.

Table 4

*Multiple Regression Predicting Vigorous Exercise and Moderate Exercise on Job Satisfaction*

Variable	B	SE	$\beta$
Intercept	3.29	.06	
Vigorous Exercise	-2.63	.00	-.08
Moderate Exercise	8.23	.00	-.13

N = 160, Notes.  $R^2 = .04$ , Adjusted  $R^2 = .02$ . \* $p < .01$ , \*\* $p < .001$ .

## Chapter IV: Discussion

This study expanded on previous research by exploring total exercise and intensity of exercise and whether it can predict employee's job satisfaction. The first goal of the present study was to confirm previous research which indicated job satisfaction and exercise would have a significant positive relationship (e.g., Bogaert et al., 2014; Frew & Bruning, 1988). Results here, however, indicated a negative relationship. While unexpected, the research on this topic has been mixed. For example, the current study's findings provide contradictory results of Frew and Bruning (1988) and Bogaert et al. (2014), who found exercise to be significantly positively associated with job satisfaction, but support the research findings of Bale, Gazmararian, and Elon (2015) and Cheema et al. (2013), who did not find a positive relationship between the two variables.

The second and third research questions aimed to determine if exercise could predict job satisfaction beyond other organizational outcomes which have been shown to predict job satisfaction (R2), and whether intensity mattered (R3). Unexpectedly, results showed that exercise was not a significant predictor of job satisfaction, and nor was exercise intensity.

There are a number of reasons why the hypothesized predictions may not have been supported. First, regarding H1, it is possible that in this work setting, exercise is simply not related to job satisfaction in a positive manner, and that other variables are simply much more closely-related to this experience. The second, potentially greater issue that may have impacted all of results is restriction of range of exercise reported by participants. Since the majority of employees reported substantial exercise habits, the true relationship between exercise and job satisfaction may not be represented accurately here (may be under-represented). The restriction of range on the reporting of exercise habits limits the ability of the current study to determine if

the type of exercise intensity makes a difference regarding job satisfaction. For instance, based on the international physical activity questionnaire, any participant that reported over 960 minutes of exercise per week was removed from analyses. Additionally, the protocol calls for any person indicating four or more hours of exercise to be truncated and dealt with as three hours. The issue that arises is that since many individuals reported exercise time that went above the allotted time had to be dealt with in this way. This issue lowers the amount of variability in exercise because it combines individuals who could not have actually exercised as much as they reported. This issue increases the challenge of being able to accurately capture the exercise habits of individuals. This may be addressed by future researchers utilizing an additional measure of exercise habits beyond the self-report measure. For example, an additional approach to measuring exercise habits would be the use of a heart rate tracker or steps tracker, which would allow researchers to gauge the actual amount of exercise an individual engaged in.

The findings also showed that total exercise was not a predictor of job satisfaction. This is important to note, as introducing physical activity as a means to increase job satisfaction may not work as intended, at least in this type of work context. Rather, organizations may need to focus more on other variables more closely tied to the experience of job satisfaction. For example, consistent with other research on this topic, stress levels are important. The results from the current study showed that perceived stress was a negative predictor of job satisfaction. Organizations should monitor the stress levels of their employees. The results from this study did show that organizational commitment is also a positive predictor of job satisfaction. If organizations want to increase their employees' satisfaction with their jobs, then they need to ensure that their employees feel committed to the organization and reduce the amount of stress the employees experience. Additional direction organizations can go is to explore the motivation

behind exercise. For example, whether an employee chooses to exercise because they value fitness in their life may impact their stress levels differently compared to an individual who has been mandated to exercise by a physician. Individual differences in motives behind exercise habits may influence stress levels and levels of fulfillment of exercise. Moreover, this relationship can also impact whether an employee becomes more satisfied with his or her job or if the experience of exercise causes adverse effects.

### **Limitations and Future Directions**

There are a number of limitations of this study. First, one limitation, in hindsight, is the utilization of the international physical activity questionnaire to measure exercise. Although this tool has been used many times in the past, there were some issues to note for future use. The international physical activity questionnaire asks participants to report the number of days in the previous week they had performed moderate exercise, vigorous exercise, the time spent walking, and the time spent sitting. One issue happens if participants are not aware that they are only supposed to choose *only* one day and report exercise habits for that specific exercise bout. This can lead to over-reporting of exercise habits if the participant reported the total amount of hours and minutes they spent performing that exercise for the week. As noted earlier, many participants had to be removed from further analysis for reporting impossible amounts of total exercise, or their responses had to be truncated so that it actually reflected possible exercise values. This was a limitation of the present study since a large number of respondents were removed or truncated for this reason. Future researchers should aim to improve the international physical activity questionnaire by making the reporting of exercise habits easier for respondents or utilizing more than one measure of exercise habits (e.g., heart rate tracker).

Another limitation of this study was that there was not enough variability in exercise habits. Also, about half of the participant did not report any moderate exercise or reported impossible values. However, all but 10 participants in the study reported walking as a form of exercise. The limitation here is that most of the exercise reported in the study comes from walking. However, while walking may be considered a form of exercise if the participants are elevating their heart rates high enough to expend more energy beyond normal day to day walking, it seems unlikely that the participants in the study reported their walking habits outside of their normal day to day walking behaviors. Additionally, when combining all the exercise levels together, approximately half of the participants were removed for reporting exercise habits that exceed the total allotment of 960 minutes a week. This becomes a concern because after removing participants most of the exercise examined in the study will be made up of the walking condition that may not actually reflect true exercise.

Walking should perhaps be omitted from the measurement of exercise in this instance. The reason for this is because the purpose of exercising explained by USDHHS (2008) is that people can benefit from exercise when they engage in certain levels and intensities of exercise. This corresponds well with the metabolic equivalent ratio meaning that when individuals exercise there is a certain amount of energy that is expended that goes beyond the normal amount from every day actions. However, due to the limitation of the measure in this study, it is unlikely that the amount of time spent walking is reflective of an exercise behavior that would raise energy expenditure to a point that exceeds normal day to day actions.

As mentioned above, most respondents reported substantial levels of exercise, which may not be very representative of the general population. It is possible that something about the survey invitation or survey itself attracted only those with an interest in exercise or dissuaded

those who do not engage in regular exercise. Given the current set of responses, it is unknown whether having a normal distribution of participants who exercise at different ranges of intensity would have changed the results from the current study. Future research should aim to obtain a more representative sample of the general population which will allow them to determine whether various exercise intensities have any effect on job satisfaction levels.

It is also important to be cognizant that the relationship between exercise and job satisfaction can be complex in nature. There are many factors that can influence the motives behind an individual choosing to exercise. As mentioned earlier, whether an individual chooses to exercise because she identifies exercise as being a part of her life or is exercising because she has been told to do so by his physician can influence enjoyment of the activity. This relationship can also impact job satisfaction levels. Those individuals exercising because they are obligated to might experience more stress and anxiety from the experience, which, in turn, might cause them to be less satisfied with their jobs.

The type of job an employee has can also determine whether they will choose to exercise, or whether exercise may have any impact on their satisfaction with their jobs. For example, employees that have jobs which require them to use more energy (e.g., post office delivery jobs) may not choose to engage in more exercise because they are already using ample energy from their jobs alone. However, employees who sit for long durations at a desk (e.g., accountants) may benefit further from exercising because they are not getting as much physical activity in their jobs, therefore, the act of exercising may actually influence their job satisfaction.

Since results from the current study showed that total exercise was negatively associated with job satisfaction, future researchers should focus more on total exercise habits when exploring the relationship job satisfaction has with exercise. Specifically, researchers could

explore different populations to see if the negative association between exercise and job satisfaction is consistent, or it could be that exercise does in fact relate positively to job satisfaction, but the current sample is not reflective of that. Moreover, researchers should aim to determine whether there is a threshold at which exercise relates to job satisfaction levels. Lastly, due to limitations in the current study regarding the examination and measurement of exercise intensity, future researchers should also try and better study this relationship.

Another direction future researchers can delve into is to examine if there are certain types of exercise that are more positively related to job satisfaction. Since the current study was limited by participants reporting impossible amount of exercise, and most of the makeup of the sample consisted of individuals who reported walking as their form of exercise, it would be worthwhile to explore various types of exercise. For instance, the current study showed that there was not a positive effect of exercise on job satisfaction. However, this finding mostly stemmed from individuals who reported walking as their means of exercise. Future researchers should explore various exercises (i.e., sprinting, weight lifting) and their impacts on job satisfaction. This may help to better describe the relationship exercise has with job satisfaction since some research has found a positive relationship when exercise consisted of high intensity circuit weight training (e.g., Norvell, Belles, & Beutler, 1993).

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### Appendix A: Job Satisfaction Survey

Please circle the one response for each question that comes closest to reflecting your opinion about your job.

1 = Strongly Disagree 2 = Disagree 3 = Neither Disagree nor Agree 4 = Agree 5 = Strongly Agree

1. I feel I am being paid a fair amount for the work I do.
2. There is really too little chance for promotion on my job. (R)
3. My supervisor is quite competent in doing his/her job.
4. I am not satisfied with the benefits I receive. (R)
5. When I do a good job, I receive the recognition for it that I should receive.
6. Many of our rules and procedures make doing a good job difficult. (R)
7. I like the people I work with.
8. I sometimes feel my job is meaningless. (R)
9. Communications seem good within this organization.
10. Raises are too few and far between. (R)
11. Those who do well on the job stand a fair chance of being promoted.
12. My supervisor is unfair to me. (R)
13. The benefits we receive are as good as most other organizations offer.
14. I do not feel that the work I do is appreciated. (R)
15. My efforts to do a good job are seldom blocked by red tape.
16. I find I have to work harder at my job because of the incompetence of people I work with.  
(R)
17. I like doing the things I do at work.

18. The goals of this organization are not clear to me. (R)
19. I feel unappreciated by the organization when I think about what they pay me. (R)
20. People get ahead as fast here as they do in other places.
21. My supervisor shows too little interest in the feelings of subordinates. (R)
22. The benefit package we have is equitable.
23. There are few rewards for those who work here. (R)
24. I have too much to do at work. (R)
25. I enjoy my coworkers.
26. I often feel that I do not know what is going on with the organization. (R)
27. I feel a sense of pride in doing my job.
28. I feel satisfied with my chances for salary increases.
29. There are benefits we do not have which we should have. (R)
30. I like my supervisor.
31. I have too much paperwork. (R)
32. I don't feel my efforts are rewarded the way they should be. (R)
33. I am satisfied with my chances for promotion.
34. There is too much bickering and fighting at work. (R)
35. My job is enjoyable.
36. Work assignments are not fully explained. (R)

### Appendix B: Organizational Commitment Questionnaire

Please circle the one response for each question that comes closest to reflecting your opinion about your job.

1 = Strongly Disagree 2 = Disagree 3 = Neither Disagree nor Agree 4 = Agree 5 = Strongly Agree

1. I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.
2. I talk up this organization to my friends as a great organization to work for.
3. I feel very little loyalty to this organization. (R)
4. I would accept almost any type of job assignment in order to keep working for this organization.
5. I find that my values and the organization's values are very similar.
6. I am proud to tell others that I am part of this organization.
7. I could just as well be working for a different organization as long as the type of work was similar. (R)
8. This organization really inspires the very best in me in the way of job performance.
9. It would take very little change in my present circumstances to cause me to leave this organization. (R)
10. I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.
11. There's not too much to be gained by sticking with this organization indefinitely. (R)
12. Often, I find it difficult to agree with this organization's policies on important matters relating to its employees. (R)

13. I really care about the fate of this organization.
14. For me this is the best of all possible organizations for which to work.
15. Deciding to work for this organization was a definite mistake on my part. (R)

### Appendix C: International Physical Activity Questionnaire

Think about all the vigorous activities that you did in the last 7 days. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

1. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?
  - 0 Days to 7 Days.
2. How many hours did you usually spend doing vigorous physical activities on one of those days?
  - 0 Hours to 24 Hours
3. How many minutes did you usually spend doing vigorous physical activities on one of those days?
  - 0 Minutes to 60 Minutes

Think about all the moderate activities that you did in the last 7 days. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

1. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.
  - 0 Days to 7 Days

2. How many hours did you usually spend doing moderate physical activities on one of those days?

- 0 Hours to 24 Hours

3. How many minutes did you usually spend doing moderate physical activities on one of those days?

- 0 Minutes to 60 Minutes

Think about the time you spent walking in the last 7 days. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

1. During the last 7 days, on how many days did you walk for at least 10 minutes at a time?

- 0 Days to 7 Days

2. How many hours did you usually spend walking on one of those days?

- 0 Hours to 24 Hours

3. How many minutes did you usually spend walking on one of those days?

- 0 Minutes to 60 Minutes

Think about the time you spent sitting on weekdays during the last 7 days. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

1. During the last 7 days, how many hours did you spend sitting on a week day?

- 0 Hours to 24 Hours
2. During the last 7 days, how many minutes did you spend sitting on a week day?
- 0 Minutes to 60 Minutes

### Appendix D: Job Involvement Questionnaire

Please circle the one response for each question that comes closest to reflecting your opinion about your job.

1 = Strongly Disagree 2 = Disagree 3 = Neither Disagree nor Agree 4 = Agree 5 = Strongly Agree

1. The most important things that happen to me involve my present job
2. To me, my job is only a small part of who I am (R)
3. I am very much involved personally in my job
4. I live, eat and breathe my job
5. Most of my interests are centered around my job
6. I have very strong ties with my present job which would be very difficult to break
7. Usually I feel detached from my job (R)
8. Most of my personal life goals are job-oriented
9. I consider my job to be very central to my existence
10. I like to be absorbed in my job most of the time

### Appendix E: Perceived Stress Scale

Please circle the one response for each question that comes closest to reflecting your perception of stress in the last month.

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

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and “stressed”?
4. In the last month, how often have you felt confident about your ability to handle your personal problems?
5. In the last month, how often have you felt that things were going your way?
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
7. In the last month, how often have you been able to control irritations in your life?
8. In the last month, how often have you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that were outside of your control?
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

**Appendix F: Demographic Items**

Are you in a full-time position?

Yes

No

Please select the title of your job.

Faculty

Administrative

Are you a tenured professor?

Yes

No

How many years have you been with your current University? \_\_\_\_\_

What is your age? \_\_\_\_\_

What is your Sex/Gender?

Female

Male

Intersex

Transgender

Alternative identity (specify) \_\_\_\_\_

Please indicate your race (choose 1 or more):

African American or Black

American Indian or Alaska Native (specify tribal affiliation) \_\_\_\_\_

Native Hawaiian/Pacific Islander

Cambodian

Hmong

Laotian

Vietnamese

Other Asian (please specify) \_\_\_\_\_

White