

ABSTRACT

Justin M. Raines. INTERNET-BASED HEALTH AND WELL-BEING INTERVENTIONS IN A WORKING POPULATION. (Under the direction of Dr. Shahnaz Aziz) Department of Psychology, April 2013.

The purpose of the current study was to investigate the effectiveness of educational email interventions in improving employee health. Employees' levels of workaholism, work stress, job satisfaction, and physical health were investigated. Additionally, self-efficacy and mindfulness were tested as moderators to the hypothesized intervention-health outcome relationship. Results indicated a significant decrease in fast food consumption following an intervention for the entire sample. When comparing treatment groups, no differences in the hypothesized direction were found on all health outcome variables. Self-efficacy and mindfulness did not moderate the hypothesized relationship. Additional results included an increase in alcohol consumption in the experimental group, relationships between self-efficacy and work stress, fast food consumption, and exercise frequency, and a relationship between mindfulness and work stress. The practical implications of these results are discussed and include suggesting that organizations carefully scrutinize employee health interventions prior to implementation to ensure sound methodological characteristics.

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IN A WORKING POPULATION

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Justin M. Raines

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INTERNET-BASED HEALTH AND WELL-BEING INTERVENTIONS
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By

Justin M. Raines

APPROVED BY:

DIRECTOR OF THESIS

Shahnaz Aziz, Ph.D.

COMMITTEE MEMBER

Lisa E. Baranik, Ph.D.

COMMITTEE MEMBER

Karl L. Wuensch, Ph.D.

CHAIR OF THE DEPARTMENT OF PSYCHOLOGY

Susan L. McCammon, Ph.D.

DEAN OF THE GRADUATE SCHOOL

Paul J. Gemperline, Ph.D.

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CHAPTER I: INTRODUCTION

Today's workforce has become increasingly more involved in work. For instance, in the year 2000, U.S. employees worked on average five more hours per week than they had in the previous decade, amounting to 47 hours per week. Furthermore, those in professional jobs show even greater time commitment to their work, logging between 50 and 80 hours per week (Brady, Vodanovich, & Rotunda, 2008). This rising trend in greater hours worked per week can increase the influence work has on an employee's life and impact their health and well-being.

Heavy work involvement is associated with multiple threats to well-being such as increased work stress, decreased emotional well-being, and decreased work enjoyment (Snir & Harpaz, 2012). Such threats are related to one another as well as a variety of health conditions. In a thorough review of occupational health studies, work stress explained variance in employee health and mortality (Macik-Frey, Quick, & Nelson, 2007). Specifically, work stress has been found to expose workers to a greater risk of cancer, diabetes, depression, anxiety, obesity, and virtually all other chronic conditions (Wolever et al., 2012). Stress is also associated with decreased work enjoyment, greater alcohol consumption, and higher frequency of smoking (Burke, 2000; Ng & Jeffery, 2003). Finally, employees who engage in high work hours are at an increased risk of physical inactivity (Kirk & Rhodes, 2011).

Physical inactivity in adults is a growing and perilous health concern in the United States, with 60% of Americans not participating in regular physical activity (Napolitano et al., 2003). Physical inactivity is defined as failing to meet the international recommendation of at least 30 minutes or more of physical activity per day for at least five days a week (Physical Activity Guidelines Advisory Committee, 2008). Physical inactivity is associated with an increased risk

of morbidity and premature mortality associated with cardiovascular disease (Napolitano et al., 2003), as well as increased stress levels (Ng & Jeffery, 2003).

In addition to decreased personal health, inactive and stressed employees also have a detrimental impact on their organization. Macik-Frey et al. (2007) defined this negative impact as “the burden of suffering” (p. 816). For organizations, this burden manifests as economic costs (Macik-Frey et al., 2007). For example, financial burden may occur via inflated healthcare costs, decreased morale stemming from psychological stress, and reduced productivity as a result of increased absenteeism (Wolever et al., 2012). In contrast, engaging in health-promoting behaviors can result in positive outcomes for the employee and their organization. For example, participation in physical activity is associated with a decreased risk of hypertension, certain cancers, stroke, depression and anxiety, as well as increased job satisfaction and reduced absenteeism (Harden, Peersman, Oliver, Mauthner, & Oakley, 1999; Napolitano et al., 2003).

Although the workplace is a common source of many health and well-being concerns, it can also provide many solutions. Considered by some researchers as an ideal stage for health promotion, the workplace allows healthy initiatives to reach large numbers of people during generally stable conditions (Harden et al., 1999). Becoming increasingly more prevalent since the 1980’s, 81% of workplaces now offer some form of health promotion program (Harden et al., 1999). In turn, the current study aimed to investigate the important health and well-being benefits offered by such initiatives. In order to investigate potential benefits, the study incorporated a unique composite of several indicators of employee health including workaholism, work stress, job satisfaction, and personal health behaviors (e.g., diet, exercise, alcohol consumption, and smoking). An adult working population was studied using educational interventions, which were disseminated through email. The central purpose of the study was to create low-cost health

promoting interventions that can be used in a non-intrusive manner and with simplicity. The interventions aimed to alleviate workaholism and work stress, as well as improve job satisfaction and health behaviors, such as employees' level of physical activity.

Indicators of Physical and Mental Health

The World Health Organization defines health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (Preamble to the Constitution of the World Health Organization, 1948). Consequently, employee intervention programs target a variety of health-related variables. These variables serve as indicators of physical and mental well-being and help researchers conceptualize overall employee health. Examples of formerly used indicators include sleep quality, mood and pain, productivity, work climate, stress levels, and chemical dependency (Benavides & David, 2010; Elo, Ervasti, Kuosma, & Mattila, 2008; Wolever et al., 2012).

The current study focuses on four indicators to represent employee health. Indicators include workaholism, work stress, job satisfaction, and personal health behaviors. Each of the four indicators has important implications for employees. First, workaholism is associated with psychological distress, lowered life satisfaction, and diagnosable diseases (Burke, 2004). Second, work stress is related to medical conditions such as high blood pressure (De Lange, Taris, Kompier, Houtman, & Bongers, 2004). Third, decreased job satisfaction is related to mental health issues such as anxiety and depression (Faragher, Cass, & Cooper, 2005). Fourth, personal health behaviors, such as smoking, hold direct implications towards employee health status. These variables play integral roles in employee health and are selected in the current study to represent employee well-being. In the following sections, the indicators workaholism, work stress, and job satisfaction are further reviewed.

Workaholism. Work increasingly has a prominent presence in our daily lives. One of the most notable differences between past and present work behavior is an increased time commitment. Many individuals report advances in technology as a leading contributor to the greater personal investment of time devoted to work. Mobile devices allow for the use of email, voicemail, and the potential for around-the-clock productivity. Frase-Blunt (2001) reported that 60% of office employees bring their mobile devices with them while on vacation. Of that percentage, 61% reportedly left their cell phone number with their employer and 50% received work-related calls while away on vacation. Committing a growing amount of time to work is often assumed as beneficial, frequently praised, and seen as a prerequisite for success (Aziz & Zickar, 2006). However, for some individuals, work can become damaging to their physical and mental well-being.

Coined in the 1971 book “Confessions of a Workaholic” by Oates, the term *workaholism* was used to describe Oates’ personal, uncontrollable need to work. In fact, Oates defined the workaholic as “a person whose need for work has become so excessive that it creates a noticeable disturbance or interference with his bodily health, personal happiness, interpersonal relations, and with his smooth social functioning” (p. 4). Furthermore, Spence and Robbins (1992) created a “workaholic triad” (i.e., work involvement, work drive, and work enjoyment), which resulted in the development of a set of worker profiles. Within these profiles, a workaholic is identified as an individual who demonstrates above average work involvement and work drive, and below average work enjoyment. Additional research has viewed workaholism as a syndrome, characterized by a set of symptoms, resulting in negative consequences such as work stress and work-life imbalance (Aziz & Zickar, 2006). While great debate still exists over the

definition of “workaholism,” there seems to be consensus that it is a damaging, excessive devotion to one’s work, which goes above and beyond what is required from the situation.

Workaholism is understood as a stable characteristic within an individual (Burke, 2004). In turn, there are several defining features of a workaholic. For example, workaholics are often described as being task-oriented, compulsive, perfectionistic, impatient, and self-centered. Workaholics also rationalize overtime and their work is the main source of their identity (Andreassen, Ursin, & Eriksen, 2007). In the workplace, workaholics are unable to delegate responsibility and can experience denial and withdrawal if they cease working (Porter, 1996; Spence & Robbins, 1992).

An additional characteristic of workaholics involves their tendency to place work above all other aspects of life. Such aspects may include their personal well-being, overall health, and relationships outside of work. As a result of such intense fixation on work, workaholism is a significant predictor of greater work-family conflict, decreased job satisfaction, and increased stress levels (Aziz & Zickar, 2006; Brady et al., 2008). These outcomes hold serious implications regarding the well-being of workaholics. For instance, work-family conflict is significantly related to depression, diminished physical health, and higher consumption of alcohol (Frone, Russell & Cooper, 1997). Subsequently, low job satisfaction can result in negative workplace outcomes such as poor job performance, lack of teamwork, and increased turnover (Brady et al., 2008). Finally, greater perceived stress has been associated with health compromising behaviors such as consumption of a higher fat diet (Ng & Jeffery, 2003).

Andreassen, Ursin, & Eriksen (2007) found a positive correlation between workaholism subscales and subjective health complaints included headaches, sleep problems, and gastrointestinal issues. Furthermore, workaholism is positively associated with ill health and

emotional discharge (i.e., a workaholic's willingness to disclose negative emotions to others), which can also negatively impact health (Shimazu, Schaufeli, & Taris, 2010). Altogether, workaholism can have serious, damaging effects on an individual, rendering it an important topic for continued investigation.

Work Stress. Lazarus and Folkman defined stress as “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (p. 19). Similarly, stress, as defined by Long and Flood (1993), “occurs when a situation that is valued and significant is appraised as taxing or exceeding the individual's coping ability” (p. 110). As the assumed majority of individuals' occupations are both valued and taxing on personal resources, stress attributed to work often occurs.

Workplace stressors, when not successfully managed, can contribute to both personal and organizational problems. The stressfulness of a job can vary depending on job design, worker demands, autonomy and control over work tasks, and organization of the workplace (Strazdins, D'Souza, Lim, Broom, & Rodgers, 2004). In the same manner that chemical and environmental hazards are recognized and managed in the workplace, psychosocial hazards, which are linked to psychological distress and chronic health issues, must also be monitored (Cheng, Kawachi, Coakley, Schwartz, & Colditz, 2000).

Noted in Flaxman and Bond (2010), 25% of workers in the United Kingdom show levels of distress equitable to a minor psychiatric disorder. Such highly stressed employees can burden an organization with greater healthcare costs and lower productivity. Estimated by the International Labor Organization, “30% of all work-related disorders are due to stress, and the loss caused by such stress-induced disorders amounted to...USD 6.6 billion in U.S.A.” (Mino,

Babzono, Tsuda, & Yasuda, 2006). Other reports reiterate the financial burden of work-related stress, also citing costs into the billions (Martín, 2010). Individually, high stress employees are 1.5 times more likely to have significantly higher annualized medical expenditures and have 45% greater medical expenses than those who have lower stress levels (Wolever et al., 2012). Furthermore, stressed employees have an increased number of days absent for sick leave (Flaxman & Bond, 2010). For example, work-related stress ranks as the second highest cause of sick leave absence in all areas of economic activity in Europe (WHO, 2000).

Amongst highly stressed employees, women report more emotional issues such as depression and anxiety, more physical symptoms such as headaches, and visit healthcare professionals more frequently than men (Nelson & Burke, 2002). However, it is unclear if such results indicate actual differences in the manifestation of stress symptoms between men and women or simply variance in the rate of reporting. In terms of health outcomes, men have higher rates of coronary heart disease, injuries, suicide, and a shorter life expectancy, as related to stress, than do women (Nelson & Burke, 2002). Overall, workplace stress acts in a variety of ways that negatively affects employee health and well-being.

Job Satisfaction. Originally defined by Hoppock (1935), job satisfaction is any combination of circumstances (e.g., psychological, physiological, and environmental) that allows an individual to say “I am satisfied with my job.” Elaborating on original concepts, Locke (1969) went on to define job satisfaction as “an emotional state, which is pleasurable to the individual and resulting from one’s job facilitating the achievement of one’s job values” (p. 316). Similarly, Cranny, Smith, and Stone (1992) described it as “an affective reaction” to the job or job situation. More recently, Wright and Cropanzano (2000) defined job satisfaction as an “internal state that is expressed by affectively and/or cognitively evaluating a job experience with some

degree of favor or disfavor” (p. 85). Regarding the concept of job satisfaction, debate exists over whether individuals view satisfaction with their job as a global concept or if they selectively examine individual facets of the job to determine their level of satisfaction. Also, consensus has yet to be reached on whether job satisfaction and job dissatisfaction are mutually exclusive entities, or if they exist on a continuum (Faragher et al., 2005). However, the remediation of such controversy surrounding job satisfaction is beyond the scope of the present study.

Since we spend much of our adult lives at work, the characteristics of our jobs and the environment in which we work can greatly influence our health and well-being. Faragher et al., (2005) suggest that common determinants of job satisfaction revolve around whether individuals find their job interesting, have quality social relationships, a high income, high levels of autonomy, and clear paths towards career promotion. Recent trends, such as the changing nature of jobs, longer work hours, tight deadlines, and little control over one’s workload may contribute to decreasing levels of job satisfaction (Faragher et al., 2005). Furthermore, a study surveying 200 managers within various organizations revealed group differences in job satisfaction (Gustainienė & Endriulaitienė, 2008). Specifically, male managers reported higher satisfaction with compensation, advancement, and working conditions, whereas female managers reported being more satisfied with intrinsic factors such as social status and task variety. Finally, managers with a higher level of education were more satisfied with work responsibility than those with lesser education (Gustainienė & Endriulaitienė, 2008).

Research demonstrates the benefits of job satisfaction on the individual level. Faragher et al.’s (2005) meta-analysis of nearly 500 studies demonstrates, with convincing evidence, a strong relationship between job satisfaction and physical and mental health. Included in their meta-analysis was a sample surpassing 250,000 employees across a wide range of organizational

backgrounds—they found that employees who experience low levels of job satisfaction are most likely to also experience emotional burnout, reduced levels of self-esteem, and elevated levels of both anxiety and depression (Faragher et al., 2005). This decrease in positive affect and mood towards oneself, as well as increased levels of depression and anxiety can lead, over time, to emotional exhaustion and potentially interfere with one's family roles, contributing to work-life imbalance (Faragher et al., 2005).

An employee's level of job satisfaction is also important to organization effectiveness. This is due to a combination of received benefits from satisfaction (e.g., increased productivity and pro-social behaviors), as well as negative consequences from dissatisfaction (e.g., absenteeism and turnover; Furnham, 2004). Together, individual and organizational outcomes of employee job satisfaction emphasize its value as a topic worth consideration by both researchers and employers.

Moderators of Health Initiatives

Self-Efficacy. An individual's level of self-efficacy plays an important role in his or her personal well-being. Albert Bandura (1977) first introduced the term *self-efficacy*, outlining it as an individual's expectations of personal competence and control over the execution of behavioral tasks, or positive beliefs about one's ability to persevere amidst challenges (Schwerdtfeger, Konermann, & Schönhofen, 2008). The higher an individual's level of self-efficacy, the more likely that individual would be successful in completing a specific task.

Koring et al. (2012) demonstrated the moderating effect of self-efficacy in a longitudinal study comprised of 290 participants. They found that self-efficacy moderated the mediated relationship between intention and physical activity via planning. That is, self-efficacy strengthened the relationship between intention and physical activity that occurred when

planning behavior was present (Koring et al., 2012). A similar study indicates a possible explanation of self-efficacy's role in health promotion by detailing the theoretical model, the Health Action Process Approach (HAPA; Schwarzer, 1992). HAPA suggests that self-efficacy, along with risk awareness and positive outcome expectancies, act as predictors of intentions. In turn, established intentions and self-efficacy are used in relation to a detailed action planning process, which includes the ways how, where, and why an individual would participate in a specific behavior (Scholz, Keller, & Perren, 2009). Levels of these aspects can then be used to predict behavior within an individual.

The relationship between an individual's self-efficacious beliefs and their physical activity is influenced by personal variables, such as age and gender, as well as environmental variables, such as access to resources and social support (Bandura, 1997). Bandura found self-efficacy to be the "preeminent determinant of consistent, health-promoting levels of physical activity" in his social-cognitive model of physical activity (Anderson et al., 2006, p. 511). As such, individuals with high levels of self-efficacy towards physical activity engage in active lives and are exposed to an assortment of positive health outcomes, such as decreased levels of stress and increased levels of well-being (Anderson et al., 2006).

Schwerdtfeger, Konermann, and Schönhofen (2008) investigated the "stress-protective" role of self-efficacy. Based on the framework established by Bandura (1997), it is believed that self-efficacy may act in a way to dampen the physiological arousal response instigated by stressors or threats. Research within a sample of schoolteachers found that self-efficacy is negatively related to negative affectivity and burnout (Schwerdtfeger et al., 2008). Also, self-efficacy is associated with lower levels of cardiac complaints and cortisol levels. Lower cortisol levels may be associated with well-being benefits such as lower levels of stress and stress-related

conditions such as hypertension and cardiac vasoconstriction (Schwerdtfeger et al., 2008). Research on closely related psychological attributes (i.e., self-esteem) provides additional support to the connection between psychological resources and individual well-being. Orth, Robins, and Widaman (2012) found that physical health improved as a result of having high self-esteem, or a positive global evaluation of one's self-worth. Specifically, individuals with high self-esteem reported greater levels of physical health, experienced less stress, felt more independent, and were more able to contribute positively to their family and society as a whole (Orth et al., 2012).

Self-efficacy shows strong predictive validity in relation to an assortment of positive health behaviors. Such behaviors include nutrition, low-risk single occasion drinking, interdental hygiene, and physical exercise (Scholz, Keller, & Perren, 2009). In sum, self-efficacy may serve as a psychological resource that moderates the relationship between interventions and participation in health promoting behaviors.

Mindfulness. Kabat-Zinn (1990), in his book "Full Catastrophe Living," speaks extensively on the topic of mindfulness. He defines mindfulness as cultivating one's ability to pay attention to the present moment in a nonjudgmental way and the practice of "owning" each moment (Kabat-Zinn, 1990). This present-moment attentiveness includes an individual's current set of feelings, sensations, thoughts, and perceptions (Smith et al., 2011).

Mindfulness-based stress reduction programs are successful in helping individuals who suffer from a variety of psychological conditions, such as depression, anxiety disorders, panic attacks, and interpersonal problems. A commonly used indicator of an individual's ability to self-regulate and their level of mindfulness is heart rate variability, or the variability in the time interval between heartbeats (Burg, Wolf, & Michalak, 2012). Burg et al. (2012) found that higher

heart rate variability predicted physical and mental health and adaptation. Therefore, a higher level of mindfulness is associated with higher levels of individual well-being through heart rate variability.

Additional research supports the importance of an individual's ability to embody a mindful state. Mindfulness is negatively associated with PTSD symptoms, depressive symptoms, physical symptoms, and alcohol problems—it also allows for greater emotional regulation during stressful situations and cognitive flexibility (Smith et al., 2011). Finally, individuals who display high levels of mindfulness are found to better tolerate emotional arousal attributed to the recall of formerly stressful or traumatic events, potentially reducing the use of negative coping mechanisms and further increasing overall well-being (Smith et al., 2011). Therefore, the growing amount of recent literature on mindfulness has increasingly established this cognitive resource as a new and important facet to investigate in relation to an employee's physical and mental health.

Costs of Poor Employee Health

Direct Financial Costs. While poor physical and mental health plagues employees individually, it also hinders the organization. A direct organizational cost that stems from employees experiencing physical and mental health issues is increased healthcare expenses. The affordability of healthcare coverage for employees is cited as a top concern of organizations (Macik-Frey et al., 2007). Healthcare spending in the United States is expected to increase to \$4 trillion by 2015, amounting to nearly a quarter of the country's GDP (Benavides & David, 2010). Specifically, as reported in the United States Chamber of Commerce's Employee Benefits Study (2006), employers pay an annual average \$5,924 per employee in medically related expenses.

Furthermore, annual healthcare plan premiums for a family of four and a single individual average \$11,000 and \$4,000, respectively (Employee Health Benefits: Annual Survey, 2005).

In addition to the rising cost of healthcare in the United States, increasing rates of obesity compound the problem and place even larger burdens on organizations. The Center for Disease Control reports an increase in healthcare costs from \$460 to \$2,500 to an organization for each obese employee, per year (Finkelstein, Fiebelkorn, & Wang, 2005). In the U.S., 30 percent of adults 20 years of age and older, which exceeds 60 million people, have a body mass index (BMI) of 30 or higher, classifying them as obese (National Center for Health Statistics, 2007). This statistic increases to 65 percent when including adults whose BMI is 25 or higher, classifying them as overweight (National Center for Health Statistics, 2007). In turn, obesity is associated with increased rates of diabetes, hypertension, stroke, sleep apnea, gallbladder disease, certain cancers, and heart disease—the leading cause of death in the United States (Benavides & David, 2010; Finkelstein, Linnan, Tate, & Leese, 2009). The treatment of obesity-related diseases is estimated to exceed \$90 billion per year (Finkelstein et al., 2009).

Mental health issues can also play a tremendous role in burdening employees and their employers. For example, anxiety disorders increase costs to employers via the medical and pharmaceutical treatment of employees. Additionally, employees with ADHD have nearly 2.5 times the medical costs of those without ADHD (Johnston, Westerfield, Momin, Phillippi, & Naidoo, 2009). Depression has similar total direct medical costs as any other major physical illness, demonstrating the increased financial load placed on organizations when an employee's health status is compounded with mental illness.

It is of note that a lack of consensus exists in the methods used to determine total healthcare costs. While some reports rely strictly on official documentation of treatment such as

medical claims, others use self-report data from employees in their estimations (Johnston et al., 2009). Although the details of the debate are beyond the scope of this study, one must use caution when making assumptions about the true costs of physical and mental health problems. Nevertheless, there are potentially enormous organizational costs accrued by employees with poor health. Of these costs, increased levels of direct, financial, healthcare expenses have a negative impact on the work environment and economy.

Indirect Financial Costs. In addition to the direct financial costs placed upon employers, indirect costs associated with absenteeism and presenteeism also negatively impact organizations. Absenteeism includes physical absence from work often seen in the form of sick-leave days. The U.S. Department of Labor (2011) defines absence from work for full-time employees as an instance when a person who usually works at least 35 hours per week, works less than that amount due to reasons including illness, injury, or medical problems. U.S. Department of Labor statistics conducted on absence from work do not include vacation or personal days. In 2011, the absence rate among total full-time employed participants across a wide range of occupations was 3% (U.S. Department of Labor, 2011).

In addition to the decreased productivity caused by absence from work, health issues can also debilitate productivity while an employee is present at work. An employee's reduced ability to perform their best while at work is known as presenteeism (Schwarz & Hasson, 2011). While many may be familiar with the concept of absenteeism, presenteeism remains a relatively new topic of concern. Coined by Cooper (2004), presenteeism is conceptualized as being physically "on the job," but performing at reduced levels of proficiency due to ill health (Brown, Gilson, Burton, & Brown, 2011). Macik-Frey et al. (2007) cite a variety of health conditions that can negatively impact productivity, including allergies, arthritis, depression, and anxiety. A possible

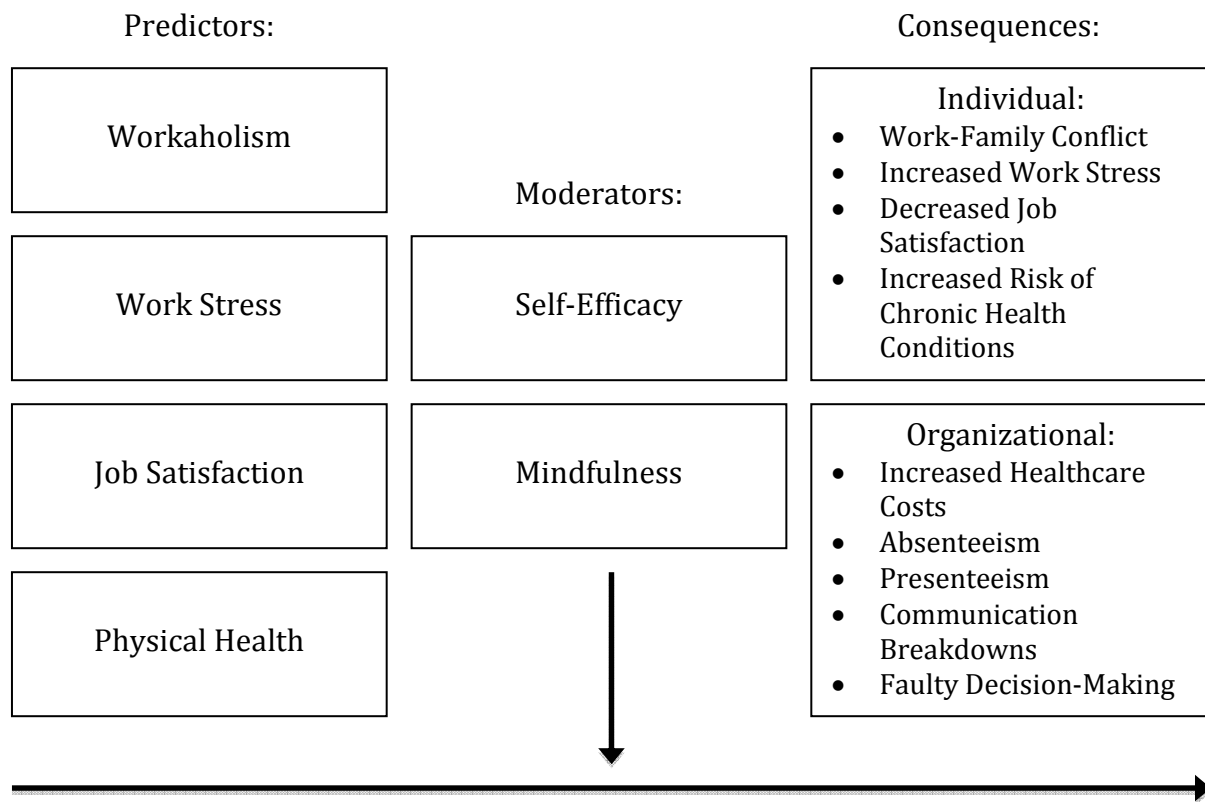
explanation for why employees might decide to attend work despite poor health is the current issues of downsizing and job insecurity (Worall, Cooper, & Campbell, 2000). Nevertheless, the main concern with both absenteeism and presenteeism is the cost to the organization in the form of lost productivity. This decrease in productivity can occur as a result of communication breakdowns, faulty decision making, reduced work output, errors on the job, or failure to be present at work (Brown et al., 2011; Macik-Frey et al., 2007).

Worth noting, although frequently placed under the title “indirect costs,” both forms of lost productivity can amount to large amounts of actual financial loss for companies. Schwarz & Hasson (2011) report that absenteeism accounts for roughly 29% to 47% of healthcare costs, while the costs associated with presenteeism may be even greater, up to 74% of total healthcare costs, depending on the condition. For example, anxiety disorders reportedly cost organizations in the United States an estimated \$42.3 billion to \$46.6 billion per year, 75% of which is accredited to losses in productivity (Johnston et al., 2009). In their study using a German-based manufacturing company consisting of nearly 1300 employees, Iverson, Lewis, Caputi, and Knospe (2010) found annual productivity losses of 12% of employee capacity, which translated to an estimated €8.78 million. Also, absenteeism was responsible for 5.11 days in lost annual productivity and presenteeism was responsible for an additional 22.39 days (Iverson et al., 2010).

While the costs of lost productivity are enormously high, if appropriate steps are taken, such as implementing worksite health enhancement strategies, significant savings and improvements can be experienced by organizations. For example, a Texas-based organization, USAA, reported \$105 million in savings from decreased absenteeism due to their implementation of such health programs (Loeppke et al., 2007). Studies also show that employees, who report improvements in their personal health risk status, also have higher self-

reported productivity (Pelletier, Boles, & Lynch, 2004). A study model including predictors of employee health, moderators to the intervention-health outcome relationship, and consequences of poor employee health is shown in Figure 1.

Figure 1. Study Model



Conventional Employee Health Interventions

Organizations can support employees by providing positive health and well-being programs. One approach to reduce the detrimental effects that work stress has on both the individual and the organization is through the use of workplace exercise programs (Long & Flood, 1993). Exercise, defined as “structured, repetitive physical activity with the goal of

improving or maintaining physical fitness” has a variety of health-enhancing effects (Long & Flood, 1993, p. 109). Exercise can help employees develop positive coping responses to stress, as well as increase coping resources. As a result of increased physical activity, employees can experience an enhanced mood state, regulate their emotions, and reach a state of relaxation through a reduction in tension (Long & Flood, 1993).

In order for organizations to successfully implement worksite stress management programs, an assortment of factors must be addressed (Wolever et al., 2012). Such programs must be accessible, engaging, and convenient in terms of scheduling, time requirements, and location. In addition, they must have the support of management, be economically sustainable, and demonstrate effectiveness through the use of established benchmarks to gauge success (Wolever et al., 2012). When successfully implemented, workplace interventions offer a variety of benefits to those involved. For example, improvements are found in employees’ self-reported well-being, mood, and level of psychological distress. Furthermore, enhancements in physiological markers, such as systolic blood pressure and sympathetic activation, also show the benefit of workplace interventions (Wolever et al., 2012). Finally, organizational benefits such as decreased medical costs, compensation benefits, reduced employee absenteeism, and increased job satisfaction all support the promotion of health in the workplace (Harden et al., 1999).

Recommendations for creating successful workplace health initiatives include needs assessments pertaining to the target population, and project planning meetings that consist of both managers and employees. Important topics to review during early meetings, such as relevance and acceptability of the program, help to ensure employee ownership and participation (Harden et al., 1999). When interventions aim to improve the lives of employees individually, a focus on educational strategies should be used. In contrast, when concentrating on the

organization as a whole, institutional support, such as healthier options at a worksite-dining hall should be of central importance (Harden et al., 1999).

Multiple approaches may be taken with regard to individual-targeted health programs. Such approaches include positive modifications in the employee's psychological, physical, and behavioral health (Kelloway & Day, 2005). Organizational programs may target a variety of outcome variables, including productivity, absenteeism, and turnover. At both levels, Kelloway and Day (2005) recommend emphasis on the "leading indicators" of employee mental and physical well-being. Addressing these "indicators," or predictors, takes an alternative approach to merely assessing individual health conditions and organizational issues and then attempting to correct them (Kelloway & Day, 2005). Rather, workplace health initiatives should truly intervene and aid in reducing work stressors and factors that influence well-being.

In their review of health promotion interventions in the workplace, Harden et al. (1999) found the most widely addressed issue is cardiovascular disease. Interventions targeted both clinical risk factors, such as blood pressure and weight, as well as behavioral risk factors, such as diet and exercise; the majority of programs (84%) were educational in nature (Harden et al., 1999). When evaluating the methodological quality and reliability of conclusions drawn from health promotion interventions, programs were considered empirically "sound" if they included pre and post-intervention data and used both control and experimental participant groups (Harden et al., 1999). The most common venues for health initiatives are public service agencies, hospitals, universities, and manufacturing sites; strategies frequently include education programs, motivational initiatives, exercise programs, and incentive-based programs (Marshall, 2004). An example of a successful workplace health initiative includes a program, which implemented changes to attract employees to low-fat food options in the workplace-dining hall (Levin, 1996).

Through the use of appropriate labels, posters, and a prize drawing, sales of low-fat options nearly tripled in a four-week period (Harden et al., 1999).

Contemporary Employee Health Interventions

Although finding solutions to employee health issues is of significant importance, numerous barriers such as lack of time and resources have traditionally prevented some individuals and organizations from participating in face-to-face programs. In order to navigate these barriers, it is essential to develop contemporary intervention methods. Thus, in order to improve accessibility, contemporary interventions utilize the modern mechanisms by which employees receive information. One method used to overcome barriers of face-to-face interventions is the use of mail-delivered interventions. Mail programs operate with minimal contact of participants, require less face-to-face time, and can significantly modify behavior (DuVall, Dinger, Taylor, & Bemben, 2004). To further improve the method, Owen, Lee, Naccarella, and Haag (1987) found that the effectiveness of mail-delivered materials can be altered by the level at which the information is tailored to the individual. Generic messaging delivers the greatest amount of information that is possible, without taking into consideration the individual differences and needs of participants. In contrast, tailored messaging provides exclusively the information that is of the most value to each individual, commonly based on pre-intervention assessments (Hageman, Walker, & Pullen, 2005). Studies show the importance of using tailored instead of generic information. Participants who received a single tailored mailing displayed more behavior modification than those who received multiple mailings of standard information (Owen et al., 1987).

More recently, the Internet is used as a cost-effective method of intervention that more easily facilitates the tailoring of information. Also, it allows health initiatives to reach large

numbers of individuals quickly and efficiently (Stralen, Vries, Mudde, Bolman, & Lechner, 2011). Matusitz and McCormick (2012) cite the Internet as the leading source of information in the United States. A reported 76% of Americans have Internet access either at home or at work, representing approximately 200 million users (Matusitz & McCormick, 2012). Furthermore, a recent study found that 59% of participants had used the Internet to find health information within the past year (Fox, 2012). With such high rates of use, the Internet and email hold great potential for novel methods of the dissemination of health information. Interventions specifically designed for online use are commonly referred to as “computer-tailored” interventions.

Computer-tailored programs allow organizations to implement and modify health resources without the traditional costs of producing and adapting hard copy materials (Stralen et al., 2011). Furthermore, empirical reviews show either no difference in outcome or superior performance of Computer-tailored programs, in comparison to face-to-face interventions (Wolever et al., 2012).

In sum, online methods are cost-effective, have the ability to reach large numbers of individuals who would have access to the delivered information, can be easily tailored for individual needs, and are increasingly becoming one of the ideal routes for finding health information (Napolitano et al., 2003). While online users can currently find a variety of health-focused websites, these sites are typically not based in theory and do little to influence behavior modification. Thus, there is a continued need for theoretically-based print interventions to be transferred into online versions (Napolitano et al., 2003). Current electronic interventions target health concerns by delivering information on topics such as “how to” calculate target heart rates, setting activity goals, stretches at your desk, and taking your pulse (Leslie, Marshall, Owen, & Bauman, 2005). Offering the ability to disseminate health interventions through a variety of outlets (e.g., websites and email), as well as reach a large number of individuals who can access

the information at their leisure, the Internet is a powerful medium to influence employee health and well-being.

Current Study

Literature emphasizing the significance of employee physical and mental health continues to be on the rise. Of central importance to the current study, contemporary intervention methods were utilized to determine their effectiveness in modifying employees' health status on a variety of dependent variables (i.e., workaholism, work stress, job satisfaction, and personal health behaviors). Specifically, educational interventions were disseminated through email, making available new information on Internet interventions. In sum, the current study attempted to globally increase employee health by targeting participants using educational email interventions and investigating a unique set of dependent variables. In addition to assessing the self-reported status of each of the four dependent variables, individual levels of self-efficacy and mindfulness were also assessed to test for potential moderating effects.

Study Hypotheses

A rise in employee well-being concerns and healthcare costs have led to increased attention on health initiatives. A 2004 survey of 365 organizations, conducted by the Deloitte Center for Health Solutions and ERISA Industry Committee, showed that 62% of the companies had already implemented wellness programs, with an additional 33% considering beginning a program of their own (Benavides & David, 2010). Success of health interventions has been demonstrated for a variety of targeted employee concerns, such as improvements in work climate, perceived stress, and heart rate variability (Elo et al., 2008; Wolever et al., 2012). In direct relation to the current study, Napolitano et al. (2003) used an internet-based, email "tip"

sheet intervention to successfully change physical activity behavior. Given these findings, the following hypothesis was presented:

Hypothesis 1: Educational interventions, disseminated through email, will significantly improve self-reported levels of employee health.

Past intervention studies, which randomly assigned participants into treatment groups, have found that improvements in the experimental group can also be seen in the control group. This phenomenon is called the “diffusion of treatment” (Gunderson & Svartdal, 2010). A potential explanation for such diffusion is that as individuals in the experimental group improve, such as in health, they motivate individuals in the control group to also improve (Guderson & Svartdal, 2010). This was of particular concern in the current study for a variety of reasons. First, the study participants worked at the same organization and were potentially in close contact. Second, the recruitment process informed participants that the study investigated online wellness interventions. Third, the interventions were disseminated via email and could easily be passed between participants. Thus, it was determined that the validity of the study would be threatened if the control group did not receive interventions.

In order to mitigate this threat to validity the current study delivered interventions to the control group that were similar to the experimental interventions but differed in content. Previous research has demonstrated the importance of targeted interventions. Specifically, interventions that included tailored information initiated greater behavior change (Owen et al., 1987). Given these findings, the following hypothesis was presented:

Hypothesis 2: Following exposure to interventions, which specifically target the dependent variables, employees in the experimental group will report greater improvements in health than employees in the control group. Specifically,

Hypothesis 2a: Following exposure to an intervention addressing workaholism, employees in the experimental group will report greater decreases in workaholism at Time 2 than those in the control group.

Hypothesis 2b: Following exposure to an intervention addressing work stress, employees in the experimental group will report greater decreases in work stress at Time 2 than those in the control group.

Hypothesis 2c: Following exposure to an intervention addressing job satisfaction, employees in the experimental group will report greater increases in job satisfaction at Time 2, than those in the control group.

Hypothesis 2d: Following exposure to an intervention addressing health behaviors, employees in the experimental group will report greater increases in health promoting behaviors (increased physical exercise, increased healthy diet, decreased frequency of smoking, decreased frequency of alcohol consumption) at Time 2 than those in the control group.

Bandura (1977, 1997) presented self-efficacy as a critical factor in one's ability to successfully engage in a task. A study conducted with 58 schoolteachers, demonstrated a positive association between self-efficacy and physical activity (Schwerdtfeger et al., 2008). Specifically, self-efficacy can serve as a moderator, strengthening the relationship between intention and behavior change, in the presence of planning (Koring et al., 2012). Based on these findings, the following hypothesis was presented:

Hypothesis 3: The effect of the intervention will be greater for those with higher self-efficacy.

Defined as the ability to center one's attention in the present moment in a nonjudgmental fashion, while taking note of all current feelings, thoughts, and sensations, mindfulness has been

shown to have significant effects on well-being (Kabat-Zinn, 1990; Smith et al., 2011).

Mindfulness is related to reduced depression, PTSD, physical symptoms, and alcohol problems (Smith et al., 2011). A possible explanation for these findings is an increase in cognitive flexibility and tolerance for emotional arousal, as facilitated by mindfulness (Smith et al., 2011).

For these reasons, the following hypothesis was presented:

Hypothesis 4: The effect of the intervention will be greater for those with higher mindfulness.

CHAPTER II: METHOD

Participants

The current study includes a sample comprised of 346 faculty and staff members employed at a large southeastern university. Demographic information for variables age, gender, race, education level, marital status, number of children, career status, average number of hours worked per week, job tenure, organizational tenure, and income bracket was collected. In the current study, the average age was 44 years with a range of 22-70 years. The sample consisted of primarily females (81.8%). Additionally, the majority of participants reported that they were Caucasian American (83.0%), followed by African American (13.5%), Asian/Pacific Islander (1.7%), "Other" (1.2%), Native American (0.3%), and Latin American (0.3%).

The study participants were well educated, as 26.2% had a Master's degree, 23.3% had a four-year college degree, 19.8% had a Doctorate degree, 12.8% had an Associate's degree, 11.7% had a high school diploma, and 6.2% had a Professional degree. The majority of participants were married (64.0%) and had children (63.4%). Of those who indicated that they had children, an average of two children was reported. Career status was defined using a classification system utilized by the university from which the sample was obtained. Participants indicated the following positions; SPA Non-Exempt (21.3%), SPA Exempt (15.2%), EPA Non-Faculty (15.2%), CSS (13.2%), Associate Professor (9.4%), Assistant Professor (8.2%), "Other" (6.1%), Instructor (4.7%), Professor (3.8%), and Administrative Staff (2.9%). Participants indicated an average of 8.4 years with the university and 5.7 years in their current position.

The average number of hours worked per week, which included hours spent at work plus hours spent outside of work when completing work-related tasks, was 46.1 with a range of 35-90 hours. Specifically, 46.3% reported working 35-40 hours per week, 36.3% reported working 41-

50 hours per week, 12.7% reported working 51-60 hours per week, and 4.4% reported working more than 61 hours per week. The annual income breakdown consisted of less than \$20,000 (0.3%), \$20,000-\$39,999 (35.6%), \$40,000-\$59,999 (29.2%), \$60,000-\$79,999 (16.9%), \$80,000-\$99,999 (5.8%), \$100,000-\$149,999 (8.7%), \$150,000-\$249,999 (3.2%), and over \$250,000 (0.3%).

Procedure

The study experimenters contacted potential participants via a recruitment email that included a brief description of the study, the requirements for participation, the presence of interventions, and the duration of the study. The recruitment email also contained a hyperlink, which directed participants to an online survey hosted within Qualtrics, an online survey provider. As an incentive to participate, individuals were informed that study participation made them eligible to be entered into a raffle to win one of four \$50 Visa gift cards.

In strict adherence to Institutional Review Board (IRB) standards, upon opening the survey link, participants were immediately prompted to read and agree to an informed consent document (see Appendix A). This document informed the individual that participation was voluntary, their responses were confidential, and they may withdraw from the study at any time without penalty. After electronically confirming their informed consent, participants were asked a series of qualifier questions (i.e., “Are you at least 18 years of age or older?”, “Do you currently work at least 35 hours per week?”, and “Do you currently have an active email address?”). Participants were required to answer “yes” to all qualifier questions to be eligible to continue the survey. Next, participants were prompted to create a unique identifier, which consisted of their birth city and the last 3 digits of their phone number (e.g., Chicago853). Unique identifiers were used to pair pretest and posttest responses. After creation of a unique

identifier, participants continued with the survey, which measured workaholism, work stress, job satisfaction, personal health behaviors, mindfulness, and self-efficacy. The survey took approximately 15-20 minutes to complete.

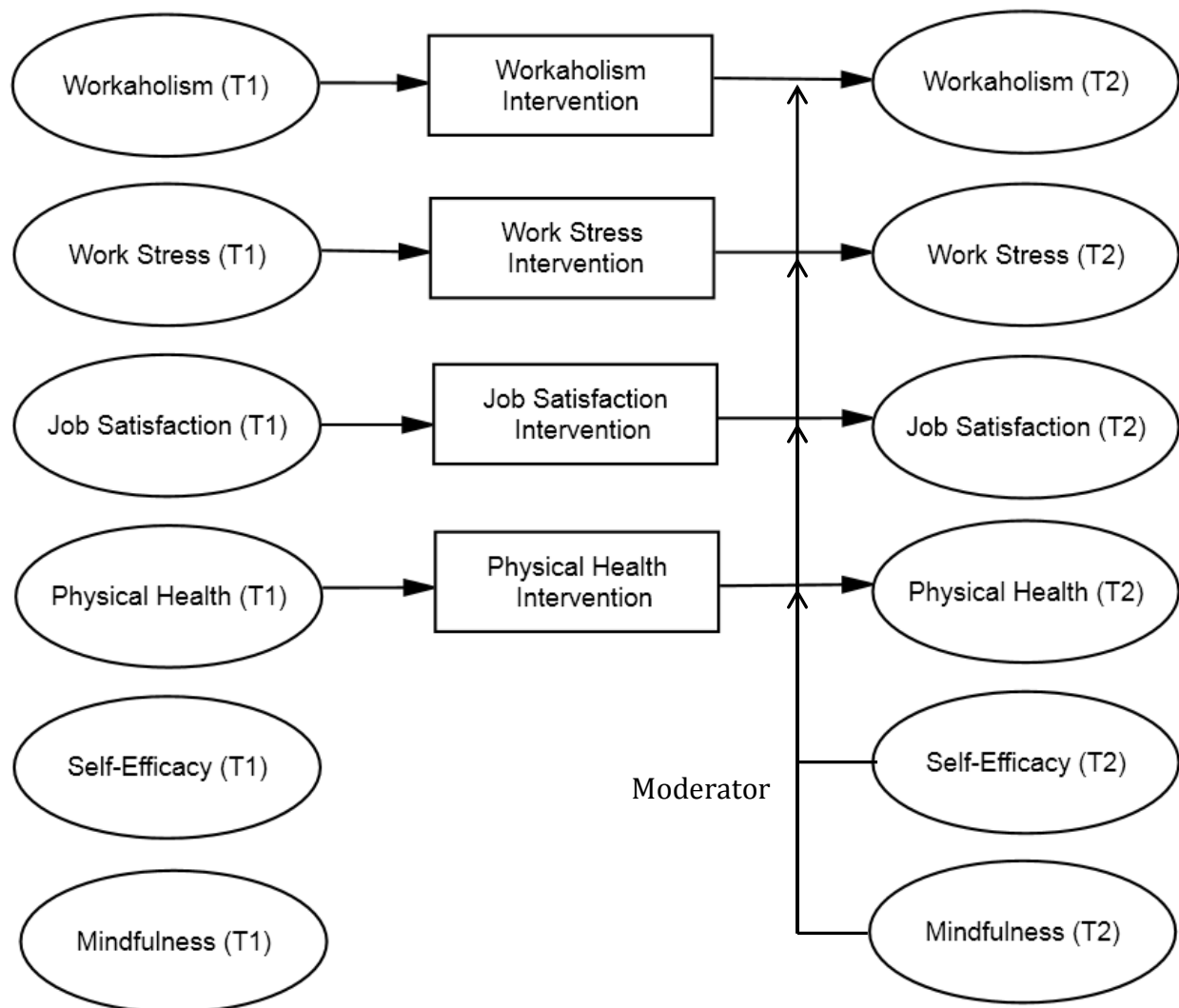
After completion of the survey, participants were automatically directed to an additional survey asking them to provide their preferred email address, which would be used to disseminate the study interventions. The additional survey was separate from the first and in no way jeopardized the anonymity of the study. Participants were then randomly assigned into one of two groups—an experimental group and a control group. The experimental group was administered four health interventions that specifically targeted the dependent variables (i.e., workaholism, work stress, job satisfaction, and personal health behaviors; see Appendix C). The control group was administered four distractor interventions that did not specifically relate to the dependent variables (i.e., being proactive, planning, prioritizing, and utilizing synergy; see Appendix D).

Interventions were disseminated electronically to the provided email addresses. Each group received one intervention per week, for a four-week period following the end of Time 1 testing. To control for order effects, participants received each of the four interventions in variable order based on four possible order patterns depicted in a 4x4 Latin square. In general, the subject matter of the experimental interventions included a brief explanation of the topic (i.e., definition), benefits of healthy levels of the variable (e.g., increased productivity due to stress reduction), consequences of unhealthy levels of the variable (e.g., trouble concentrating due to excessive stress), tips for behavior improvement (e.g., practicing relaxation techniques), and a request to participate in behaviors that promote positive levels of the subject matter (e.g., take a 10 minute break the next time you are feeling stressed to record your thoughts, feelings, and

sensations). All information provided in the interventions was acquired through online sources, otherwise available to the general public (e.g., American Heart Association website).

Following the four-week intervention period, study experimenters emailed participants and provided them with a survey link. The survey link directed participants to a final survey, identical to the first. Following completion of the final survey, all participants were sent an email, which thanked them for their participation and provided them with the interventions that they did not receive during the study. Finally, the data were exported from Qualtrics to statistical analysis software. An experimental group model is shown in Figure 2.

Figure 2. Experimental Group Model



Measures

Workaholism. The Work Addiction Risk Test (WART; Robinson, 1999) was used to measure workaholism (see Appendix B). The WART consists of 25 items, which describe a range of work habits (e.g., “I feel guilty when I am not working on something”). Participants used a 4-point scale, ranging from “*Very Untrue of Me*” to “*Very True of Me*,” to indicate how well each item described their work behaviors. All responses were summed, offering a score ranging from 25 to 100. None of the items were reverse scored. A greater overall score indicated a higher level of work addiction. Robinson (1999) reported a coefficient α of .88. Similarly, the current study revealed a coefficient α of .89.

Work Stress. The Stress in General Scale-Revised (SIG-R; Yankelevich, Broadfoot, Gillespie, Gillespie, & Guidroz, 2011) was used to measure work stress (see Appendix B). The SIG-R is an 8-item assessment that measures overall work stress by presenting the participant with adjectives or short phrases describing a work condition (e.g., demanding, overwhelming). Participants were asked if each item described their current job situation and responded using a 3-point scale, including 1 “Yes,” 2 “No,” and 3 “*Cannot Decide*.” Answer choices “Yes,” “No,” and “*Cannot Decide*” were scored as “1,” “0,” and “0,” respectively. One item was reverse scored, indicated by an asterisk in Appendix B. All responses were summed, offering a score ranging from 0 to 8. A higher score on the overall measure indicated greater levels of work stress. The SIG-R measure has demonstrated acceptable convergent and discriminant validity (Yankelevich et al., 2011). The current study revealed at coefficient α of .83.

Job Satisfaction. The Abridged Job in General Scale (A-JIG; Russell, Spitzmüller, Lin, Stanton, Smith, & Ironson, 2004) was used to measure job satisfaction (see Appendix B). The A-JIG is an 8-item assessment that measures job satisfaction, using the same short phrase and

adjective format as the SIG-R. Sample items include, “Better than most” and “Makes me content.” Participants were asked if each item described their current job and responded using a 3-point scale, including 1 “Yes,” 2 “No,” and 3 “*Cannot Decide*.” The A-JIG was scored in the same fashion as the SIG-R. Three items were reverse scored, indicated by an asterisk in Appendix B. All responses were summed, offering a score ranging from 0 to 8. A greater score on the overall measure indicated higher levels of job satisfaction. Russell et al. (2004) reported a coefficient α of .85, as well as acceptable convergent and discriminant validity. Similar to Russell et al. (2004), the current study revealed a coefficient α of .86.

Personal Health. Personal health was measured using a 13-item assessment designed by the study experimenters (see Appendix B). Participants responded using a variety of response formats, including multiple-choice and Likert scale. The assessment covered a wide range of personal health topics, including overall health rating, smoking and alcohol consumption frequency, fast food consumption frequency, exercise frequency and exercise intensity. Sample items include, “Where do you go to engage in physical activity or exercise?” and “Would you like to change your current smoking behavior?” Items were scored and assessed individually. None of the items were reversed scored.

Mindfulness. The Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) was used to measure mindfulness (see Appendix B). The FFMQ is a 39-item assessment that consists of five factors, which measure mindfulness skills: observing, describing, acting with awareness, nonreactivity of inner experience, and nonjudging of inner experience. Sample items include, “I’m good at finding the words to describe my feelings” and “I notice the smells and aromas of things.” Participants responded using a 5-point scale, ranging from 1 “*Never or Very Rarely True*” to 5 “*Very Often or Always True*.” Responses were

summed, resulting in a total score for each of the five factors. A total score for the entire measure, ranging from 39 to 195, was also calculated. Nineteen items were reverse scored, indicated by an asterisk in Appendix B. Baer et al. (2006) reported coefficient α 's for each of the five factors, ranging from .75 to .91. The current study revealed a coefficient α for the entire measure of .91.

Self-Efficacy. The General Self-Efficacy Scale (GSES; Schwarzer, Bäßler, Kwiatek, & Schröder, 1997) was used to measure self-efficacy (see Appendix B). The General Self-Efficacy Scale is a 10-item assessment that measures an individual's global sense of personal competence to effectively handle stressful situations. Although health-specific self-efficacy measures are available, the General Self-Efficacy Scale was selected to measure the construct as a general personality disposition. As opposed to specifically addressing health behaviors, generalized self-efficacy may be used to support behaviors in multiple domains (Schwarzer et al., 1997). Due to the range of predictors used in this study a generalized approach was deemed most appropriate. However, for use in the current study, some items were modified to address work and personal wellness issues, indicated by a double asterisk (**) in Appendix B. Sample items include, "I can always manage to solve difficult problems at work if I try hard enough" and "I can solve most personal wellness problems if I invest the necessary effort." Participants responded using a 4-point scale, ranging from 1 "*Not at all True of Me*" to 4 "*Exactly True.*" All responses were summed, resulting in a score ranging from 10 to 40. None of the items were reverse scored. A greater overall score on the measure indicated higher levels of global self-efficacy. Schwarzer et al. (1997) reported coefficient α 's ranging between .75 and .90. The current study revealed a coefficient α of .87.

Data Analysis

Descriptive statistics (i.e., means, standard deviations, and ranges) and correlations were calculated for all study variables (i.e., workaholism, work stress, job satisfaction, personal health behaviors, mindfulness, and self-efficacy). Descriptive statistics were also calculated for demographic variables such as age and gender, in order to describe the study sample. Finally, a reliability analysis was conducted on all measures to ensure adequate internal consistency reliability (i.e., Cronbach's alpha).

The study included one independent variable, "Group," which consisted of participants' membership in either the experimental or control group. The study included four dependent variables, which consisted of participants' scores on measures of workaholism, work stress, job satisfaction, and personal health behavior. Finally, the study included two moderator variables, which consisted of participants' scores on measures of mindfulness and self-efficacy.

For each of the four dependent variables, a difference score between pre and post assessment scores was calculated for each participant (DIFF). First, a paired-samples t-test was conducted for each dependent variable, testing the null hypothesis that, ignoring groups, mean DIFF = 0 (Hypothesis 1). Next, a one-way analysis of variance (ANOVA) was conducted for each of the four dependent variables, testing the null hypothesis that, between groups, mean DIFF = 0 (Hypothesis 2a to 2d). Finally, a least squares analysis of covariance (ANCOVA) with an interaction term was used to test for moderation. Moderator variables (Covariate) were examined separately, but with identical analyses using model DIFF = Group Covariate Group*Covariate. This determined if the interaction term was significant, indicating that the relationship between the covariate and DIFF differed between groups (Hypothesis 3 & 4). If the interaction term Group*Covariate was not significant, the term was dropped from the model and

model DIFF = Group Covariate was tested. This tested if the covariate term was significant, indicating that the moderator variable affected the amount of change from pretest to posttest, ignoring groups. A .05 criterion of statistical significance was used for all statistical analyses.

CHAPTER III: RESULTS

Data Screening

Participants were recruited through network connections of key university faculty and staff members, as well as university electronic mailing lists. These recruitment methods linked the study researchers to a large participant pool ($N = 6,288$). Specifically, sampling included the distribution of emails to all available participants (i.e., not random), informing them of the study topic and requesting their participation. Participation in the study was voluntary, anonymous, and participants had the ability to withdraw at any point without penalty. A power analysis was conducted and it was determined that the target number of participants to ensure sufficient power of the results was approximately 300.

A total of 1021 survey responses were originally received from the Time 1 survey, a response rate of 16.2%. Sixty-eight respondents were deleted from the study as they failed to pass the qualifier questions or to provide informed consent to participate. Next, 136 respondents were deleted for failing to provide a unique identifier. Finally, listwise deletion removed an additional 162 respondents who failed to complete one or more study measures (Allison, 2001). In general, participants who were removed for missing data appeared to start the survey but not finish it. Initial data screening on the Time 1 survey resulted in 655 usable surveys.

A total of 783 survey responses were originally received from the second portion of the Time 1 survey, which asked for the participants' email address. A possible explanation for the discrepancy in responses between the Time 1 survey and the Email survey is that the participants were directed to the Email survey, but closed their web browser before completing it. Thirty-five respondents were removed after failing to pass qualifier questions, identical to those in the Time 1 survey. Participants were required to answer the qualifier questions a second time because

study researchers could not prevent those who were deemed unqualified by the Time 1 survey from being routed to the Email survey. Twelve additional respondents were deleted after providing unusable email addresses (i.e., did not provide a domain name). Data screening on the Email survey resulted in 736 usable email addresses. The email addresses were divided into eight groups, designated to receive either the experimental or control interventions in one of four possible order patterns. Each group contained 92 participants.

A total of 475 survey responses were received on the Time 2 survey out of the 736 potential participants who received the study interventions, a response rate of 64.5%. After pairing participants' Time 1 and Time 2 survey responses, 129 respondents were deleted from the study as a result of not participating in the Time 2 study or for failing to complete one or more study measures on the Time 2 survey. Ultimately, 346 participants were included in the current study.

Descriptive Statistics and Correlations

Descriptive statistics (means, standard deviations, and ranges) and correlations for the current study variables are shown in Table 1. The WART at Time 1 and Time 2 was negatively correlated with the A-JIG, the FFMQ, the GSES, and general health status at Time 1 and Time 2. In contrast, the WART at Time 1 and Time 2 was positively correlated with the SIG-R at Time 1 and Time 2. Additional correlations were found between the WART at Time 1 and/or Time 2 and number of drinks (i.e., the number of alcoholic drinks consumed per day) and diet (i.e., frequency of meals within dietary guidelines) at Time 1 and/or Time 2. Finally, the two administrations of the WART were highly correlated with each other (.76), indicating test-retest reliability. These correlations are consistent with past research. For example, Aziz and Zickar (2006) found a positive correlation (.38) between the SIG, the predecessor of the SIG-R, and

measures of workaholism. This is comparable to the correlations found in the current study, which range from .35 to .47 across administrations of the measures.

The SIG-R at Time 1 and Time 2 had the highest negative correlation with the A-JIG at Time 1 and Time 2. Additionally, negative correlations were found between the SIG-R at Time 1 and/or Time 2 and the FFMQ, the GSES, and general health status at Time 1 and/or Time 2. Finally, the two administrations of the SIG-R were highly correlated with each other (.75), indicating test-retest reliability. In comparison to previous studies, which have revealed a negative correlation (-.18) between the SIG-R and earlier versions of the A-JIG, the current study found similar but larger correlations between the two measures, ranging from -.32 to -.39 across Time 1 and Time 2 (Yankelevich et al., 2011).

The A-JIG at Time 1 and Time 2 was positively correlated with the FFMQ, the GSES, and general health status at Time 1 and Time 2. Additionally, the A-JIG at Time 1 and/or Time 2 was negatively correlated with the number of cigarettes (i.e., the number of cigarettes smoked per day) at Time 1 and/or Time 2 and positively correlated with diet and exercise frequency at Time 1 and/or Time 2. Finally, the two administrations of the A-JIG were highly correlated with each other (.79), indicating test-retest reliability.

The FFMQ at Time 1 and Time 2 was positively correlated with the GSES, general health status, diet, and exercise frequency at Time 1 and Time 2. Additionally, the FFMQ at Time 2 was positively correlated with exercise intensity at Time 1. In contrast, the FFMQ at Time 1 and Time 2 was negatively correlated with the number of cigarettes at Time 1 and Time 2. Finally, the two administrations of the FFMQ were highly correlated with each other (.83), indicating test-retest reliability. These correlations are consistent with past research, which has revealed a positive correlation (.34) between the FFMQ and measures of self-efficacy (Greason &

Cashwell, 2009). However, the current study found higher correlations, ranging from .47 to .52 across administrations of the measures.

The GSES at Time 1 and Time 2 was positively correlated with general health status, exercise frequency, and exercise intensity. In contrast, the GSES at Time 1 and Time 2 was negatively correlated with the number of cigarettes at Time 1 and Time 2. Additionally, the GSES at Time 1 and/or Time 2 was negatively correlated with fast food consumption (i.e., frequency of fast food consumption per week) at Time 1 and/or Time 2. An unexpected relationship was found between the GSES and diet. Specifically, the GSES at Time 1 and Time 2 was positively correlated with diet at Time 1. However, regarding diet at Time 2, the GSES was negatively correlated at Time 1 and positively correlated at Time 2. Finally, the two administrations of the GSES were highly correlated with each other (.71), indicating test-retest reliability. In general, these correlations are consistent with past research that indicates a positive relationship between measures of self-efficacy and positive health behaviors such as exercise (Scholz, Keller, & Perren, 2009).

In addition to the aforementioned correlations between the study measures, several items within the personal health measure correlated with one another. First, general health status at Time 1 and Time 2 was positively correlated with diet, exercise frequency, and exercise intensity at Time 1 and Time 2. In contrast, general health status was negatively correlated with fast food consumption at Time 1 and Time 2. Additionally, general health status at Time 1 was negatively correlated with number of cigarettes at Time 1 and Time 2. Second, number of cigarettes smoked at Time 1 and Time 2 was negatively correlated with diet at Time 2, as well as exercise frequency and exercise intensity at Time 1 and Time 2. Third, number of drinks at Time 1 and Time 2 was negatively correlated with fast food consumption at Time 1 and Time 2. In contrast,

number of drinks at Time 1 and Time 2 was positively correlated with exercise frequency and exercise intensity at Time 1 and Time 2. Additionally, number of drinks at Time 1 was positively correlated with diet at Time 1 and number of drinks at Time 2 was positively correlated with diet at Time 1 and Time 2. Forth, fast food consumption at Time 1 and Time 2 was negatively correlated with diet, exercise frequency, and exercise intensity at Time 1 and Time 2. Fifth, diet at Time 1 and Time 2 was positively correlated with exercise frequency at Time 1 and Time 2.

Finally, the diagonal on Table 1 indicates Cronbach's alpha, a measure of internal consistency, for each of the study measures. All study measures had strong alphas, which range from .83 to .91 and exceed the recommended value of .80, for use in research that investigates mean differences between experimental treatments (Nunnally, 1978). As previously mentioned, means, standard deviations, and ranges for all the study variables are also included in Table 1. In general, the study variables means and ranges were consistent with previous research. For example, Aziz et al. (2010) reported a mean of 60.15 and range of 29-88 for the workaholism measure, the WART. In the current study, the Time 1 and Time 2 means for the WART were 60.86 and 61.32, respectively. Furthermore, the current study had Time 1 and Time 2 ranges for the WART of 31-97 and 26-96, respectively.

Table 1
Correlations and Descriptive Statistics (N = 346)

Variable	WART (T1)	WART (T2)	SIG-R (T1)	SIG-R (T2)	A-JIG (T1)	A-JIG (T2)	FFMQ (T1)	FFMQ (T2)	GSES (T1)	GSES (T2)	GHS (T1)	GHS (T2)	SMOKE (T1)
WART (T1)	(.89)												
WART (T2)	.76**	(.89)											
SIG-R (T1)	.35**	.36**	(.83)										
SIG-R (T2)	.39**	.47**	.75**	(.83)									
A-JIG (T1)	-.23**	-.22**	-.32**	-.38**	(.83)								
A-JIG (T2)	-.19**	-.22**	-.32**	-.39**	.79**	(.86)							
FFMQ (T1)	-.44**	-.39**	-.16*	-.23**	.31**	.24**	(.91)						
FFMQ (T2)	-.38**	-.38**	-.10	-.25**	.24**	.21**	.83**	(.91)					
GSES (T1)	-.15*	-.16*	-.10	-.17**	.23**	.19**	.53**	.50**	(.86)				
GSES (T2)	-.12**	-.16*	-.13*	-.23**	.21**	.22**	.47**	.53**	.71**	(.87)			
GHS (T1)	-.13*	-.09	-.17**	-.27**	.25**	.20**	.27**	.25**	.35**	.39**	--		
GHS (T2)	-.12*	-.13*	-.11*	-.23**	.20**	.20**	.22**	.29**	.37**	.50**	.70**	--	
SMOKE (T1)	.09	.06	.04	.04	-.12*	-.17*	-.15*	-.13*	-.12*	-.17*	-.11*	-.07	--
SMOKE (T2)	.10	.07	.01	.03	-.10	-.15*	-.15*	-.12*	-.11*	-.17*	-.11*	-.08	.94**
DRINK (T1)	.14*	.08	.06	.07	-.02	-.07	.04	.06	.04	.06	.13*	.06	.02
DRINK (T2)	.09	.06	.06	.08	-.02	-.06	.07	.07	.04	.08	.10	.05	-.03
F-FOOD (T1)	-.01	.01	-.01	.04	-.06	-.06	-.10	-.08	-.12*	-.10	-.27**	-.27**	.04

F-FOOD (T2)	-.04	-.02	.01	.09	-.05	-.06	-.09	-.09	-.15	-.21**	-.26**	-.29**	.06
DIET (T1)	-.04	-.10	.00	-.06	.07	.04	.21**	.19**	.14*	.18**	.20**	.21**	-.08
DIET (T2)	-.07	-.12*	-.03	-.07	.10	.13*	.20**	.21**	-.15*	.25**	.22**	.24**	-.11*
EX-FR (T1)	.02	-.02	.00	-.07	.10	.15*	.13*	.15*	.17**	.21**	.30**	.28**	-.15*
EX-FR (T2)	-.02	-.05	-.01	-.08	.10	.15*	.15*	.17*	.19**	.30**	.30**	.33**	-.15*
EX-IN (T1)	.01	.03	.01	-.02	.09	.10	.08	.14*	.21**	.19*	.26**	.28**	-.17*
EX-IN (T2)	.04	.06	.06	.00	-.05	.03	.08	.08	.18*	.22*	.17*	.20**	-.24**
Range of Current Data	31-97	26-96	0-8	0-8	0-8	0-8	79-182	70-183	17-40	14-40	1-5	1-5	1-6
Range of Possible Scores	25-100	25-100	0-8	0-8	0-8	0-8	39-195	39-195	10-40	10-40	1 = Poor 5 = Excellent	1 = Poor 5 = Excellent	1 = 0 6 = 20 +
Mean	60.86	61.32	3.42	3.51	6.38	6.22	136.71	137.14	31.66	31.85	3.63	3.62	1.24
SD	11.56	11.63	2.53	2.55	2.00	2.23	18.60	18.19	4.23	4.26	.91	.88	.86

Note. Entries on the main diagonal are Cronbach's alpha. WART = Work Addiction Risk Test; SIG-R = Stress in General-Revised; A-JIG = Abridged Job in General Scale; FFMQ = Five Facet Mindfulness Questionnaire; GSES = General Self-Efficacy Scale; GHS = General health status rating; SMOKE = Average number of cigarettes smoked per day; DRINK = Average number of alcoholic drinks consumed per day; F-FOOD = Average number of times fast food is consumed per week; DIET = Average meal within dietary guidelines rating; EX-FR = Exercise frequency (number of days engaged in exercise per week); EX-IN = Exercise intensity rating.

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

Table 1 Continued

Correlations and Descriptive Statistics (N = 346)

Variable	SMOKE (T2)	DRINK (T1)	DRINK (T2)	F-FOOD (T1)	F-FOOD (T2)	DIET (T1)	DIET (T2)	EX-FR (T1)	EX-FR (T2)	EX-IN (T1)	EX-IN (T2)
WART (T1)											
WART (T2)											
SIG-R (T1)											
SIG-R (T2)											
A-JIG (T1)											
A-JIG (T2)											
FFMQ (T1)											
FFMQ (T2)											
GSES (T1)											
GSES (T2)											
GHS (T1)											
GHS (T2)											
SMOKE (T1)											
SMOKE (T2)	--										

DRINK (T1)	.03	--									
DRINK (T2)	-.05	.74**	--								
F-FOOD (T1)	.02	-.21**	-.23**	--							
F-FOOD (T2)	.07	-.24**	-.25**	.69**	--						
DIET (T1)	-.08	.13*	.14*	-.35**	-.34**	--					
DIET (T2)	-.13*	.05	.14*	-.29**	-.24**	.62**	--				
EX-FR (T1)	-.13*	.15*	.16*	-.29**	-.31**	.30**	.29**	--			
EX-FR (T2)	-.13*	.18**	.17*	-.30**	-.34**	.27**	.32**	.80**	--		
EX-IN (T1)	-.14*	.17*	.13*	-.20**	-.23**	.07	.06	.38**	.41**	--	
EX-IN (T2)	-.20**	.20**	.20**	-.14*	-.24**	-.01	.03	.37**	.43**	.66**	--
Range of Current Data	1-6	1-3	1-4	1-5	1-5	1-5	1-5	1-8	1-8	1-3	1-3
Range of Possible Scores	1 = 0 6 = 20 +	1 = 0 4 = 5 +	1 = 0 4 = 5 +	1 = 0 5 = 6 +	1 = 0 5 = 6 +	1 = Never 5 = All of the time	1 = Never 5 = All of the time	1 = 0 8 = 7	1 = 0 8 = 7	1 = Low 3 = High	1 = Low 3 = High
Mean	1.20	1.40	1.42	2.02	1.94	3.22	3.23	3.67	3.75	1.84	1.85
SD	.79	.54	.56	.84	.81	.90	.87	2.00	2.02	.69	.69

Note. Entries on the main diagonal are Cronbach's alpha. WART = Work Addiction Risk Test; SIG-R = Stress in General-Revised; A-JIG = Abridged Job in General Scale; FFMQ = Five Facet Mindfulness Questionnaire; GSES = General Self-Efficacy Scale; GHS = General health status rating; SMOKE = Average number of cigarettes smoked per day; DRINK = Average number of alcoholic drinks consumed per day; F-FOOD = Average number of times fast food is consumed per week; DIET = Average meal within dietary guidelines rating; EX-FR = Exercise frequency (number of days engaged in exercise per week); EX-IN = Exercise intensity rating.

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

Tests of Hypotheses

Hypothesis 1. Hypothesis 1 proposed that educational interventions, disseminated through email, would significantly improve self-reported levels of employee health. To examine this hypothesis, difference scores between pre and post assessment scores were calculated for each participant on each dependent variable. A paired-samples t-test was conducted for each dependent variable, testing the null hypothesis that, ignoring groups, mean DIFF = 0. Analyses revealed that, with the exception of fast food consumption, there was no effect of the study interventions on difference scores. Investigation of the fast food consumption variable demonstrated that, ignoring groups, there was a significant decrease in fast food consumption following the study interventions, $t(344) = 2.332, p = .020$. Thus, Hypothesis 1 is partially supported.

Hypothesis 2. Hypothesis 2 proposed that following exposure to interventions, which specifically target the dependent variables, employees in the experimental group will report greater improvements in health than employees in the control group. This hypothesis was further separated into four sub-hypotheses to propose the specific influence that such interventions would have on the study variables (i.e., workaholism, work stress, job satisfaction, and personal health behaviors). To examine this hypothesis, a one-way ANOVA was conducted for each dependent variable, testing the null hypothesis that the mean pre-post change did not differ between groups. Analyses revealed that, with the exception of alcohol consumption, there was no significant effect of treatment on pre-post difference scores. Although there was a main effect of treatment on number of drinks, it was in the opposite direction as hypothesized, thus Hypothesis 2 was not supported. Subsequently, Hypotheses 2a to 2d were not supported. Means for the current study variables at Time 1 and Time 2 are shown in Table 2.

Table 2
Means at Time 1 and Time 2

Variable	WART	SIG-R	A-JIG	FFMQ	GSES	GSH	SM	DR	F-FOOD	DIET	EX-FR	EX-IN
Time 1	60.86	3.42	6.38	136.71	31.66	3.63	1.24	1.40	2.02	3.22	3.67	1.84
Time 2	61.32	3.51	6.22	137.14	31.85	3.62	1.20	1.42	1.94	3.23	3.75	1.85

Note. WART = Work Addiction Risk Test; SIG-R = Stress in General-Revised; A-JIG = Abridged Job in General Scale; FFMQ = Five Facet Mindfulness Questionnaire; GSES = General Self-Efficacy Scale; GSH = General health status rating; SM = Average number of cigarettes smoked per day; DR = Average number of alcoholic drinks consumed per day; F-FOOD = Average number of times fast food is consumed per week; DIET = Average meal within dietary guidelines rating; EX-FR = Exercise frequency (number of days engaged in exercise per week); EX-IN = Exercise intensity rating.

Hypothesis 2a. Hypothesis 2a proposed that following exposure to an intervention addressing workaholism, employees in the experimental group would report greater decreases in workaholism at Time 2 than those in the control group. A one-way ANOVA revealed that there was no main effect of treatment on difference scores for workaholism, $F(1, 305) = 1.907, p = .168$.

Hypothesis 2b. Hypothesis 2b proposed that following exposure to an intervention addressing work stress, employees in the experimental group would report greater decreases in work stress at Time 2 than those in the control group. A one-way ANOVA revealed that there was no main effect of treatment on difference scores for work stress, $F(1, 334) = .253, p = .616$.

Hypothesis 2c. Hypothesis 2c proposed that following exposure to an intervention addressing job satisfaction, employees in the experimental group would report greater increases in job satisfaction at Time 2 than those in the control group. A one-way ANOVA revealed that there was no main effect of treatment on difference scores for job satisfaction, $F(1, 317) = .169, p = .681$.

Hypothesis 2d. Hypothesis 2d proposed that following exposure to an intervention addressing health behaviors, employees in the experimental group would report greater increases in health promoting behaviors (i.e., increased physical exercise, increased healthy diet, decreased frequency of smoking, and decreased frequency of alcohol consumption) at Time 2 than those in the control group. A one-way ANOVA revealed that there was no main effect of treatment on difference scores for exercise frequency ($F(1, 344) = .022, p = .881$), diet ($F(1, 343) = 1.084, p = .299$), fast food consumption ($F(1, 343) = 3.737, p = .054$), and number of cigarettes ($F(1, 342) = .118, p = .732$). In contrast, there was a main effect of treatment on difference scores for number of drinks, $F(1, 341) = 5.382, p = .021$. Investigation of the alcohol consumption variable demonstrated that, in comparison to the control group, employees in the experimental group consumed more alcohol following the study interventions. Furthermore, the difference between Time 1 and Time 2 scores was significantly different from zero in the experimental group ($t(176) = -2.215, p = .028$) but not the control group ($t(165) = 1.043, p = .299$).

Hypothesis 3. Hypothesis 3 proposed that the effect of the intervention would be greater for those with higher self-efficacy. A least squares ANCOVA was conducted using model Pre-Post Change = Group Self-Efficacy Group*Self-Efficacy to determine if there was a significant interaction between self-efficacy and group membership. A significant interaction would indicate a differential relationship between the covariate and difference scores when comparing the treatment groups with each other. Analyses revealed that there was no significant interaction between self-efficacy and group membership for workaholism ($F(1, 286) = 1.197, p = .275$), work stress ($F(1, 313) = 1.124, p = .290$), job satisfaction ($F(1, 296) = 2.073, p = .151$), diet ($F(1, 320) = .630, p = .428$), fast food consumption ($F(1, 320) = 1.702, p = .193$), number of

cigarettes ($F(1, 319) = .414, p = .521$), number of drinks ($F(1, 318) = .227, p = .634$), and exercise frequency ($F(1, 321) = .002, p = .962$). Thus, Hypothesis 3 was not supported.

Following, the model Pre-Post Change = Group Self-Efficacy was tested to investigate the unique effects of self-efficacy on each dependent variable. Analyses revealed that, after controlling for group membership, self-efficacy was not significantly correlated with the amount of change from pretest to posttest for workaholism ($F(1, 287) = 2.322, p = .129$), job satisfaction ($F(1, 297) = .351, p = .554$), diet ($F(1, 321) = 1.099, p = .295$), number of cigarettes ($F(1, 320) = .237, p = .627$), and number of drinks ($F(1, 319) = .649, p = .421$). In contrast, self-efficacy was significantly correlated with the amount of change from pretest to posttest for work stress ($F(1, 314) = 6.856, p = .009$), fast food consumption ($F(1, 321) = 4.465, p = .035$), and exercise frequency ($F(1, 322) = 7.117, p = .008$). Specifically, in comparison to those lower in self-efficacy, employees higher in self-efficacy reported a greater increase in work stress, a smaller decrease in fast food consumption, and a greater increase in exercise frequency between pretest and posttest.

Hypothesis 4. Hypothesis 4 proposed that the effect of the intervention would be greater for those with higher mindfulness. A least squares ANCOVA was conducted using model Pre-Post Change = Group Mindfulness Group*Mindfulness to determine if there was a significant interaction between mindfulness and group membership. Analyses revealed that there was no significant interaction between mindfulness and group membership for workaholism ($F(1, 268) = .234, p = .629$), work stress ($F(1, 287) = .066, p = .798$), job satisfaction ($F(1, 271) = 2.030, p = .155$), diet ($F(1, 293) = .053, p = .817$), fast food consumption ($F(1, 293) = .246, p = .612$), number of cigarettes ($F(1, 293) = .041, p = .840$), number of drinks ($F(1, 292) = .009, p = .924$), and exercise frequency ($F(1, 294) = .487, p = .486$). Thus, Hypothesis 4 was not supported.

Following, the model Pre-Post Change = Group Mindfulness was tested to investigate the unique effects of mindfulness on each dependent variable. Analyses revealed that, after controlling for group membership, mindfulness was not significantly correlated with the amount of change from pretest to posttest for workaholism ($F(1, 269) = .035, p = .852$), job satisfaction ($F(1, 272) = .103, p = .749$), diet ($F(1, 294) = .013, p = .908$), fast food consumption ($F(1, 264) = .016, p = .899$), number of cigarettes ($F(1, 294) = .931, p = .335$), number of drinks ($F(1, 293) = .014, p = .904$), and exercise frequency ($F(1, 295) = .505, p = .478$). In contrast, mindfulness was significantly correlated with the amount of change from pretest to posttest for work stress ($F(1, 288) = 14.419, p < .001$). Specifically, in comparison to those lower in mindfulness, employees higher in mindfulness reported a greater increase in work stress between pretest and posttest.

CHAPTER IV: DISCUSSION

Research suggests that the current workforce commits increasingly more time to work (Brady, Vodanovich, & Rotunda, 2008). This growing trend has several important implications as far as personal well-being and organizational consequences. On an individual level, employees may become overly committed to work and experience deleterious health consequences, as seen in workaholism (Oates, 1971). For example, heavy work involvement is associated with work stress, decreased job satisfaction, and increased risk of negative personal health behaviors (e.g., greater alcohol consumption and higher frequency of smoking; Ng & Jeffery, 2003; Snir & Harpaz, 2012). These findings were also found in the current study, as number of hours (i.e., number of hours spent at work plus hours spent outside of work when completing work-related tasks) had a significant positive correlation with workaholism, work stress, and alcohol consumption

Not only are the negative effects of heavy work involvement experienced by employees, but such excessive commitment may also impact organizational outcomes. When employees' heavy involvement in work results in stress, they may experience mental and physical illness that can result in increased healthcare costs, reduced productivity, and absenteeism (Macik-Frey et al., 2007). Nevertheless, the workplace is a fruitful environment to successfully intervene and improve employees' health and well-being. As such, workplace health initiatives have become increasingly more popular since the 1980's (Harden et al., 1999). Health promotion programs have evolved over time from face-to-face interventions to educational programs that can be accessed via the Internet. The current study aimed to enhance the research surrounding modern health interventions and examined the effectiveness of educational interventions disseminated

through email. If proven effective, email interventions can provide a low-cost method for improving employee health and are easily managed by organizations.

Overall, the results of the current study suggest that educational health interventions, disseminated through email, are not effective at initiating behavior change for workaholism, work stress, job satisfaction, and personal health behaviors. However, after receiving the interventions, employees in both the experimental and control group consumed less fast food. Additionally, there were several significant results, which conflicted with the study hypotheses. For example, a main effect of treatment was found for alcohol consumption, such that employees in the experimental group engaged in higher alcohol consumption following the intervention phase. In general, results of the current study advance the existing research by investigating the effectiveness of a modern method of health intervention.

Correlations

There were many important correlations found between the measures used in the current study. First, Time 1 and Time 2 measures for workaholism, work stress, and job satisfaction correlated highly with each other, ranging from .71 to .83, indicating strong test-retest reliability. Furthermore, several items from the personal health measure showed similar correlations between Time 1 and Time 2 administrations, ranging from .62 to .94. These results were consistent with previous findings. For example, over a two-week period, the WART showed test-retest reliability of .83 (Robinson, Post, & Khakee, 1992). Although the current study revealed a slightly lower correlation (.76), the measures were separated by approximately 11 weeks.

Next, the WART was highly correlated with a measure of work stress, the SIG-R, and a measure of mindfulness, the FFMQ. As previously mentioned, past research has found similar correlations between the WART and versions of the SIG (Aziz & Zickar, 2006). In turn, this

finding further supports the connection between workaholism and work stress, such that individuals who report high levels of workaholism also report high levels of work stress. Additionally, due to the longitudinal nature of the current study, this relationship appears to be stable over time. Regarding mindfulness, a negative relationship was found between it and workaholism. This makes sense in that the concept of workaholism, as an intense fixation on work, is in direct conflict with mindfulness, which requires present-moment attentiveness to *all* feelings, thoughts, and perceptions (Smith et al., 2011).

Mindfulness and job satisfaction were positively correlated with each other. Mindful individuals have a greater ability to regulate their emotions during stressful situations and are more cognitively flexible (Smith et al., 2011). Perhaps an individual's ability to regulate his/her response to stress helps in developing greater amounts of job satisfaction. This result provides additional support for the increasing need for mindfulness-based wellness programs in the workplace to help alleviate stress and increase job satisfaction (Fries, 2009). This idea is further supported by the negative correlation between work stress and job satisfaction. Previous research has established this relationship, demonstrating that factors, which decrease work stress, help to improve job satisfaction (Griffiths, Baxer, & Townley-Jones, 2011).

In addition to mindfulness, self-efficacy also had a positive correlation with job satisfaction. This finding was expected, as previous studies have demonstrated the relationship between general self-efficacy and job satisfaction (Duggleby, Cooper, & Penz, 2009). It is possible that an individual's positive perception of personal competence and control over behavioral tasks enhances their job satisfaction. This relationship may occur either by mentally perceiving a higher rate of success in the midst of work challenges, or perhaps via actual success in the workplace, leading to higher satisfaction.

Finally, self-efficacy was positively correlated with mindfulness and ratings of general health status. The positive relationship between self-efficacy, mindfulness, and health represents the mentally and physically healthy individual. Researchers have demonstrated that self-efficacy translates into physical activity via intention and subsequent planning behavior (Koring et al., 2012). Thus, mindful individuals who are attentive to the present-moment may use their feelings, thoughts, and emotions to build self-efficacious beliefs and engage in planned physical activity, which promotes their overall health. Likewise, it is possible that individuals who engage in physical activity experience increased self-efficacious beliefs and heightened levels of attentiveness.

Effectiveness of an Internet-Based Intervention

A paired-samples t-test was used to determine whether educational interventions, disseminated through email, significantly improved self-reported levels of employee health. There were no significant differences between Time 1 and Time 2 on measures of workaholism, work stress, and job satisfaction. Additionally, with the exception of fast food consumption, no differences between Time 1 and Time 2 were found on the personal health measure. The effect seen in fast food consumption was consistent with the study's hypotheses. However, it appears that under the specific circumstances, email health interventions do not have a large enough influence on an individual's everyday life to modify behavior. In general, this result highlights the difficult task of modifying employee health behavior via interventions. In the current study, it is possible this finding is due to several methodological characteristics that prevented the interventions from having a significant impact on employees. Specifically, it is possible that aspects of the email interventions, such as the level of tailoring of the intervention information and the timeline utilized for the intervention period, could have prevented the desired behavior

change. This may be due to the non-intrusive nature of email interventions. Given that email is a common method for delivering information, it is possible that non-tailored information delivered for a brief period of time was simply overlooked by employees.

Regarding fast food consumption, it was found that after receiving the interventions, individuals in both the experimental and control group consumed less fast food. A possible explanation for this finding involves three aspects. First, all participants were informed that they were participating in an employee wellness program. Second, by asking participants to report their health behaviors, the study may have engendered demand characteristics. Third, the amount of fast food one consumes may be perceived as closely related to their level of wellness. It is possible that the combination of these aspects influenced participants to portray an increase in health at Time 2. Furthermore, participants' reported this increase in health on fast food consumption, which they could have assumed to be related to wellness.

Following analyses that ignored treatment groups, a one-way ANOVA was conducted for each dependent variable to test for a main effect of treatment. With the exception of alcohol consumption, there was no main effect of treatment on difference scores. Further investigation of alcohol consumption revealed that, in comparison to the control group, employees in the experimental group engaged in higher frequency consumption of alcohol following the intervention phase. A possible explanation for this finding involves the content of the interventions. Specifically, the experimental interventions encouraged the participant to decrease workaholicism and work stress, as well as increase job satisfaction. In contrast, the control interventions revolved specifically around productivity, such as prioritizing and setting goals. Perhaps, in an attempt to separate from work, decrease stress, and increase satisfaction, individuals in the experimental group engaged in alcohol consumption. Whereas, individuals in

the control group were focused on increasing productivity and alcohol consumption presented itself as contradictory to that goal.

Self-Efficacy as a Moderator

Results revealed that self-efficacy did not moderate the relationship between the intervention and difference scores for any of the study variables. However, self-efficacy was significantly correlated with the amount of change from pretest to posttest for work stress, fast food consumption, and exercise frequency. Specifically, self-efficacious employees reported a greater increase in work stress, a smaller decrease in fast food consumption, and a greater increase in exercise frequency between pretest and posttest. The work stress and fast food consumption results were in the opposite direction as hypothesized, whereas, the exercise frequency result was in agreement with the study hypotheses.

Although no clear reason exists in the current literature regarding the contradictory results for work stress and fast food consumption, a possible explanation exists in the context of the exercise frequency result. It is possible that self-efficacious employees who wished to improve their well-being opted to engage in exercise, which is known to be positively related to health. Additionally, consistent engagement in this behavior could require substantial resources, which self-efficacious employees possess. However, they may not have had sufficient resources to engage in additional healthy behaviors, such as reducing their work stress and eating healthy foods.

One explanation for the finding for exercise frequency is that there are more widely known methods of achieving success regarding exercise, in comparison to the other study variables. Workplace health interventions that target exercise are prevalent, whereas, interventions targeting variables such as workaholism and job satisfaction are much less

common. For example, Harden et al. (1999) found that the most widely addressed issue for health promotion interventions was cardiovascular disease. Furthermore, the interventions target behaviors such as exercise as solutions to the health concern. This greater prevalence of interventions and educational material, which informs individuals about ways to engage in physical exercise, could have given participants a greater ability to initiate the requested behavior change. This increased knowledge of the ways to go about changing one's behavior, in combination with self-efficacy to engage in the process of improving oneself, may have led to the observed moderating effect.

Mindfulness as a Moderator

Results revealed that mindfulness did not moderate the relationship between the intervention and difference scores for any of the study variables. However, mindfulness was significantly correlated with the amount of change from pretest to posttest for work stress. Specifically, mindful employees reported a greater increase in work stress between pretest and posttest. Similar to the contradictory results regarding self-efficacy and work stress, no current explanation exists in the literature for this finding. However, it is possible that although mindful employees devoted attention to their present moment feelings, thoughts, and emotions, they were ill prepared to manage their current level of work stress. Specifically, the employees were attentive to their level of work stress, yet unable to manage the stress due to insufficient coping strategies and emotional management skills, thus exacerbating the experience of work stress. A potential answer may also be found within the various limitations of the current study.

Study Limitations and Future Research

In an attempt to maximize the effectiveness of the study interventions, consideration was given to the advice provided by past studies. For example, Wolever et al. (2012) advised that in

order for workplace stress management programs to be successful, they must be accessible, engaging, convenient, and have minimum time and location requirements. Email interventions provide the optimal method for accomplishing these subscribed guidelines. Furthermore, Harden et al. (1999) stated that methodologically, health promotion interventions should use pre and post-intervention data as well as experimental and control groups. Again, the current study adhered to these guidelines. Yet, despite incorporating such suggestions, there are some limitations to the current study. First, the current study potentially suffered from demand characteristics that could have threatened its internal validity. Specifically, participants were made aware of their participation in an employee wellness program. This could have engendered responses that the participants believed were desired by the study's researchers. Such responses could have been aimed at representing a positive change in behavior, such as a reduction in fast food consumption.

Next, there were also some shortcomings in the actual interventions and their administration. The interventions contained generic information, as opposed to material tailored specific to participants. Although research indicates that when compared to face-to-face interventions, Internet-based programs can result in superior performance, previous studies highlight the importance of individually tailored health material (Hageman, Walker, & Pullen, 2005; Wolever et al., 2012). In contrast, the current study used health material that was not specified for any particular individual. This method was used in an attempt to establish non-intrusive health interventions. Tailored interventions would require enhanced contact and discussion with individual participants. Study researchers strived to investigate the effectiveness of interventions that required minimal contact with participants and maximum ease for dissemination by individuals potentially untrained in health interventions (i.e., management).

Thus, no personalization of information was conducted. However, it is believed that this is a potentially vital aspect of Internet-based health interventions. Furthermore, the overall results of the study indicate that face-to-face interventions would be altogether more effective. In the future, researchers should conduct initial interviews with participants to establish health and well-being goals. In turn, interventions should be tailored to the individual and involve periodic face-to-face communication with the participant. This method could both increase the feelings of participation within the individual and make the interventions more pertinent to their life. An additional limitation of the interventions includes the diverse range of health behaviors targeted. As opposed to focusing on a single health behavior and administering multiple interventions to modify the behavior, the current study focused on many health behaviors and participants received a single intervention to shape the behavior. Future research should investigate the influence of email interventions that target a single health behavior through multiple interventions.

In addition to minimal contact with and customization for participants, study researchers did not control for whether or not the participants viewed the study interventions and the amount of time dedicated to viewing them. Again, study researchers believed this was an important aspect to avoid when creating non-intrusive, low maintenance interventions. However, it too may be vital for email interventions to be successful. In future research on this topic, investigators are encouraged to examine the actual amount of active participation. Such information would provide greater understanding about the individuals who choose not to actively participate in health interventions as well as the appropriate amount of time needed for the interventions to be effective.

A final limitation of the study involves the content of the control interventions. To increase the methodological strength of the study, a control group was used. As a control, participants were sent interventions identical to those in the experimental group, with the exception of the content. Individuals in the control group received interventions that addressed topics unrelated to the study variables, such as prioritizing and utilizing synergy. In contrast, individuals in the experimental group received interventions that specifically addressed the study variables. Given the current study results, it is believed that the control interventions could have had a similar, if not equal, effect on the self-reported levels of the study variables. In future research, control interventions that have a decreased risk of influencing the study outcomes should be used. However, researchers should also be cognizant of the possibility for communication between participants in different treatment groups and the ease of transmission of email interventions between individuals.

Organizational/Practical Implications

Based on previous research, its results and recommendations, and the observed areas of improvement in the current study, several promising organizational and practical implications exist. With growing rates of Internet use, organizations have the ability to promote well-being to large numbers of employees quickly and without the traditional costs of producing and dispensing hard copy materials (Stralen et al., 2011). However, as demonstrated by the current study, employee health behavior can be difficult to modify. Furthermore, previous research demonstrates that when behavior is modified by Internet health interventions, it often returns to baseline levels over time (Napolitano et al., 2003). Therefore, in order to effectively initiate positive health behavior in employees, organizations should dedicate thoughtful consideration to the lessons derived from past research. Also, organizations must avoid investing in employee

health intervention programs that do not incorporate the suggestions of previous research and demonstrate strong results for behavior change. Nevertheless, with increased investigation of the most effective methods for creating and disseminating email interventions, employers could experience the benefits traditionally derived from more costly and burdensome interventions. Such benefits include decreased medical costs, reduced employee absenteeism, and increased job satisfaction (Harden et al., 1999).

Finally, as demonstrated by past research and the select results in the current study, self-efficacy and mindfulness are two promising variables for organizations to help manage the well-being of their workforce, thus, managers should promote their benefits. Furthermore, managers can support their employees by providing Employee Assistance Programs, which incorporate more individualized interventions such as mindfulness-based stress reduction programs. Based on the volume of past research, it is beneficial for management to take such an approach with their employees. Work stress can reach levels equitable to minor psychiatric disorders (Flaxman & Bond, 2010). In turn, highly stressed employees have a costly negative impact on their organization. As such, organizations should use well-established health interventions and push for innovative strategies to improve the well-being of its employees.

Conclusions

In an attempt to increase success, management should target the health and well-being of its employees. Although the current study did not find a significant effect of health interventions disseminated through email, it adds to the growing body of research that promotes the importance of such interventions and provides guidance for future research. It is possible that an employee's exposure to methods for improving personal health increases his/her ability to initiate behavior change. Therefore, managers should promote health and educate employees, in

addition to helping them develop the psychological resources needed to engage in new healthy behaviors. Holistic Employee Assistance Programs that provide employees with tailored information could accomplish this task. Furthermore, continued research should be conducted on email interventions, as they represent a cost-effective and easily managed method for intervention, which is necessary in modern business. Increased acceptance of the notion that employee well-being is important and intimately related to an organization's bottom-line will help to support the need for such research.

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Appendix A: IRB Approval Letter and Informed Consent Document



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
Office
4N-70 Brody Medical Sciences Building· Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · www.ecu.edu/irb

Notification of Initial Approval: Expedited

From: Social/Behavioral IRB
To: [Justin Raines](#)
CC: [Shahnaz Aziz](#)
Date: 11/2/2012
Re: [UMCIRB 12-001949](#)
Internet-Based Health and Well-Being Interventions

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 11/2/2012 to 11/1/2013. The research study is eligible for review under expedited category #7. The Chairperson (or designee) deemed this study no more than minimal risk.

Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The Investigator must adhere to all reporting requirements for this study.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418 IRB00004973



Informed Consent to Participate in Research

Information to consider before taking part in research that has no more than minimal risk.

Title of Research Study: Internet-Based Health and Well-Being Interventions in a Working Population

Principal Investigator: Justin Raines, Graduate Student

Institution/Department or Division: East Carolina University

Address: East Fifth Street, Greenville, NC 27858

Telephone #: 252-737-1376

Researchers at East Carolina University (ECU) study problems in society, health problems, environmental problems, behavior problems and the human condition. Our goal is to try to find ways to improve the lives of you and others. To do this, we need the help of volunteers who are willing to take part in research.

Why is this research being done?

The purpose of this research study is to determine whether online health interventions are effective at positively influencing various aspects of employee wellness. The decision to take part in this research is yours to make. By conducting this research, we hope to learn more about the link between non-intrusive health interventions and positive change in employee wellness.

Why am I being invited to take part in this research?

You are being invited to take part in this research because you are a member of the professional community, work at least 35 hours per week, and have an active email address. If you volunteer to take part in this research, you will be one of approximately 400 people to do so.

Are there reasons I should not take part in this research?

This study is intended for full-time employees who are over the age of 18 and have an active email address. If this description does not fit you, then please do not proceed to complete the questionnaire.

What other choices do I have if I do not take part in this research?

You can choose not to participate in this research study.

Where is the research going to take place and how long will it last?

The research procedures will be conducted online, via a secure online survey software company. The total amount of time you will be asked to volunteer for this study is approximately 15 minutes, on only two occasions. That is, the survey will be repeated and the interval between Time 1 and Time 2 will be about three months. Within the period of time in-between the two surveys, you will be sent one email from study researchers, once a week for four weeks, which you will be asked to attend to. The amount of time it will take you to attend to each email is approximately 5 minutes. Following the first survey, you will be randomly placed into one of two groups. The groups will differ from one another in regard to the content of the emails you will be asked to attend to. We are doing a repeated measures design to see if the self-report measures are stable. A repeated measures design will also help to determine if the online interventions have an influence on employee wellness.

What will I be asked to do?

You are being asked to complete a short online survey regarding impressions and feelings of your job and working behaviors, health behaviors, general beliefs about yourself, and demographic information. Please do not include your name at any point during completion of the survey. You will be asked, however, to create a unique identifier in the survey at Time 1 and use the same code at Time 2, thereby allowing us to anonymously match the responses. You may end your participation at any point, or refuse to answer any of the questions that you deem inappropriate. Completion of the online survey equates participant consent. Please be honest when indicating responses to the questionnaire. Note that upon completion of the survey you will be directed to an additional survey that asks for your preferred email address. It is not mandatory to provide your preferred email address but doing so will make you eligible to receive study interventions and continue your participation in the study. Following the first brief survey, you will be asked to attend to a series of emails delivered over the course of four weeks, as well as complete a second brief survey.

What possible harms or discomforts might I experience if I take part in the research?

It has been determined that the risks associated with this research are no more than what you would experience in everyday life.

What are the possible benefits I may experience from taking part in this research?

We do not know if you will get any benefits by taking part in this study. However, this research will further our understanding of online health interventions and their influence on employee wellness. Thus, although there may be no personal benefit from your participation, the information gained by doing this research may help others in the future.

Will I be paid for taking part in this research?

We will not be able to pay you for the time you volunteer while being in this study. However, participation will automatically enroll you in a raffle to win one of four \$50.00 Visa gift cards. The raffle will take place at the end of the study.

What will it cost me to take part in this research?

It will not cost you any money to be part of the research study.

Who will know that I took part in this research and learn personal information about me?

Data collected for this study will be kept confidential and will be protected to the fullest extent provided by law. In any sort of report we might publish, we will not include any information that will make it possible for others to identify a participant. Data will be stored securely and only the research investigators will have access to it.

How will you keep the information you collect about me secure? How long will you keep it?

At no point in the survey process will any identifying information (i.e., name) be associated with your responses. All responses to the survey will remain completely anonymous and confidential. The final report for this study will include only aggregated data; no individual data will be singled out for separate analyses. The responses you provide will be encoded and analyzed by the research investigators at East Carolina University. Only members of our research team will be permitted to view the survey data. The information collected from this study will be stored in a private database and may be used in future research.

What if I decide I do not want to continue in this research?

If you decide you no longer want to be in this research after it has already started, you may stop at any time. You will not be penalized or criticized for stopping. You will not lose any benefits that you should normally receive.

Who should I contact if I have questions?

The people conducting this study will be available to answer any questions concerning this research, now or in the future. You may contact the Principal Investigator, Justin Raines, at 252-737-1376 (days, 9:00 am-5:00 pm).

If you have questions about your rights as someone taking part in research, you may call the Office for Human Research Integrity (OHRI) at phone number 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, you may call the Director of the OHRI, at 252-744-1971.

I have decided I want to take part in this research. What should I do now?

The person obtaining informed consent will ask you to read the following and if you agree, you should indicate your agreement with this form:

- I have read (or had read to me) all of the above information.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that I can stop taking part in this study at any time.

Appendix B: Measures

Demographics

Please check the box that best reflects your answer to each of the following questions.

Please assign yourself a unique identifier with the following format: birth city + last 3 digits of your phone number (e.g., Chicago853): _____

How many hours per week do you work (i.e., number of hours spent at work *plus* hours of work done outside of the office that directly supports your position's duties)? _____

How old are you (in years)? _____

Gender: ☐ Male ☐ Female

Race: ☐ Caucasian American ☐ African American ☐ Native American
☐ Latin American ☐ Asian/Pacific Islander ☐ Other

Highest level of education: : ☐ Less than High School ☐ High School ☐ Associates Degree
☐ College (B.A./B.S.) ☐ Professional Degree (M.D. etc) ☐ Masters (M.A. etc.) ☐ Doctorate (PhD)

Marital Status: ☐ Single ☐ Living with someone ☐ Married ☐ Separated
☐ Divorced ☐ Widowed

Do you have any children? ☐ Yes ☐ No

If yes, then how many? _____

How many years have you worked at your organization in the same capacity (e.g., teaching, administration, etc.)? _____

How many years have you held your current position? _____

Career Status: ☐ Assistant Professor ☐ Associate Professor ☐ Full Professor
☐ Clinical Professor ☐ Support Staff ☐ Professional Staff

Income Bracket: ☐ Less than \$20,000 ☐ \$20,000-39,999 ☐ \$40,000-59,999 ☐ \$60,000-79,999
☐ \$80,000-\$99,000 ☐ \$100,000-\$149,000 ☐ \$150,000-\$249,000 ☐ \$250,000 and over

Working Styles

Please answer the following questions concerning how you feel about various aspects of your work by choosing one of the four alternatives that best reflects your answer.

	1 ▼ Very Untrue of Me	2 ▼ Somewhat Untrue of Me	3 ▼ Slightly True of Me	4 ▼ Very True of Me
1. I prefer to do most things myself rather than ask for help.....	1	2	3	4
2. I get impatient when I have to wait for someone else or when something takes too long, such as long, slow-moving lines.....	1	2	3	4
3. I seem to be in a hurry and racing against the clock.....	1	2	3	4
4. I get irritated when I am interrupted while I am in the middle of something..	1	2	3	4
5. I stay busy and keep many irons in the fire.....	1	2	3	4
6. I find myself doing two or three things at one time such as eating lunch and writing a memo, while talking on the phone.....	1	2	3	4
7. I overly commit myself by biting off more than I can chew.....	1	2	3	4
8. I feel guilty when I am not working on something.....	1	2	3	4
9. It is important that I see the concrete results of what I do.....	1	2	3	4
10. I am more interested in the final result of my work than in the process	1	2	3	4
11. Things do not seem to move fast enough or get done fast enough for me..	1	2	3	4
12. I lose my temper when things don't go my way or work out to suit me.....	1	2	3	4
13. I ask the same question over again, without realizing it, after I've already been given the answer once.....	1	2	3	4
14. I spend a lot of time mentally planning and thinking about future events while tuning out the here and now.....	1	2	3	4
15. I find myself continuing to work after my coworkers have called it quits	1	2	3	4
16. I get angry when people don't meet my standards of perfection.....	1	2	3	4
17. I get upset when I am in situations where I cannot be in control.....	1	2	3	4
18. I put myself under pressure with self-imposed deadlines when I work	1	2	3	4
19. It is hard for me to relax when I'm not working.....	1	2	3	4
20. I spend more time working than on socializing with friends, on hobbies, or on leisure activities.....	1	2	3	4
21. I dive into projects to get a head start before all phases have been finalized	1	2	3	4
22. I get upset with myself for making even the smallest mistake.....	1	2	3	4
23. I put more thought, time, and energy into my work than I do into my relationships with friends and loved ones.....	1	2	3	4
24. I forget, ignore, or minimize birthdays, reunions, anniversaries, or holidays.....	1	2	3	4
25. I make important decisions before I have all the facts and have a chance to think them through thoroughly.....	1	2	3	4

Job Stress

Do you find your job to be stressful? For each of the following words or phrases, circle:

1..... for "Yes" if it describes your job

2..... for "No" if it does not describe it

3..... for "?" if you cannot decide

	Yes	No	?		Yes	No	?
1. Demanding.....	1	2	3	5. Nerve-wracking.....	1	2	3
2. Pressured.....	1	2	3	6. Hassled	1	2	3
3. Calm*	1	2	3	7. More stressful than I'd like...	1	2	3
4. Many things stressful.....	1	2	3	8. Overwhelming.....	1	2	3

Job Satisfaction

Does each of the following items describe your current job? For each of the following words or phrases, circle:

1..... for "Yes" if it describes your job

2..... for "No" if it does not describe it

3..... for "?" if you cannot decide

	Yes	No	?		Yes	No	?
1. Good.....	1	2	3	5. Makes me content.....	1	2	3
2. Undesirable*.....	1	2	3	6. Excellent.....	1	2	3
3. Better than most.....	1	2	3	7. Enjoyable.....	1	2	3
4. Disagreeable*.....	1	2	3	8. Poor*.....	1	2	3

Personal Health

Please select the response that best describes, in general, your current health status.

- ☐ Poor
- ☐ Fair
- ☐ Good
- ☐ Very Good
- ☐ Excellent

Do you have any of the following health conditions? Please select all that apply.

- ☐ Type 2 Diabetes
- ☐ Heart Disease
- ☐ High Cholesterol
- ☐ Cancer
- ☐ High Blood Pressure
- ☐ Kidney Disease
- ☐ No current health conditions
- ☐ Other _____

**Please indicate, on average, the number of cigarettes you smoke during a normal 24-hour period.
(20 cigarettes is equal to 1 pack of cigarettes)**

- ☐ 0
- ☐ 1-4
- ☐ 5-9
- ☐ 10-14
- ☐ 15-20
- ☐ 20+

Would you like to change your current smoking behavior? Please mark all that apply.

- ☐ No
- ☐ Yes, I would like to decrease the amount of cigarettes I smoke during a day
- ☐ Yes, I would like to decrease the frequency of smoking cigarettes
- ☐ Yes, I would like to stop smoking

Please indicate, on average, the number of alcoholic drinks you consume during a normal 24-hour period.

- ☐ 0
- ☐ 1-2
- ☐ 3-4
- ☐ 5+

Would you like to change your current drinking behavior? Please mark all that apply.

- ☐ No
- ☐ Yes, I would like to decrease the amount of alcohol I consume during a day
- ☐ Yes, I would like to decrease the frequency of consuming alcohol
- ☐ Yes, I would like to stop drinking

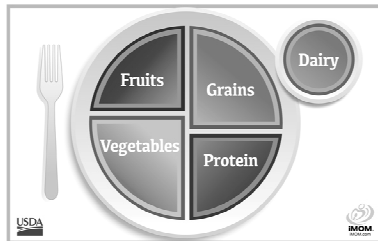
During a typical week, how many times to you eat a meal purchased at a fast food restaurant? Examples of fast food restaurants include Wendy's, McDonalds, Cookout, Taco Bell, Kentucky Fried Chicken, and Pizza Hut.

- ☐ 0
- ☐ 1-2
- ☐ 3-4
- ☐ 5-6
- ☐ 6+

Would you like to change your current fast food eating behavior? Please mark all that apply.

- ☐ No
- ☐ Yes, I would like to decrease the amount of fast food meals I consume during a day
- ☐ Yes, I would like to decrease the frequency of consuming fast food meals
- ☐ Yes, I would like to stop consuming fast food

Using the following graphic and thinking about the last time you had dinner, in general, how frequently does your typical meal consists of the recommended amount of each food group.



- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ All of the Time

During a typical week, other than in your regular job, how many days do you engage in any physical activity or exercise that lasts at least a half an hour?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7

Please indicate the level of intensity in which you engage in physical activity or exercise.

Low intensity exercise, such as walking does not induce sweating unless it's a hot, humid day. There is no noticeable change in breathing patterns.

Moderate intensity exercise, such as jogging or weight training will induce sweating after performing the activity for about 10 minutes. Breathing becomes deeper and more frequent. You can still carry on a conversation.

High intensity exercise, such as cycling or sprinting will induce sweating after 3-5 minutes. Breathing is deep and rapid. You can only talk in short phrases.

- ☐ Low
- ☐ Moderate
- ☐ High

Where do you go to engage in physical activity or exercise?

- ☐ Home
- ☐ Private Gym
- ☐ University Gym
- ☐ Sidewalks/Roads
- ☐ Public Park
- ☐ Other _____

If you do not participate in physical activity or exercise, please indicate the main reason why you do not.

- ☐ My job is physical or hard labor
- ☐ Exercise is not important to me
- ☐ I don't have access to a facility and/or resources to exercise
- ☐ I don't have enough time
- ☐ I don't like exercise
- ☐ I would need child care and I don't have it
- ☐ It costs too much to exercise
- ☐ I'm physically disabled
- ☐ I don't know
- ☐ Other _____

Mindfulness

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

	1 ▼ Never or very rarely true	2 ▼ Rarely true	3 ▼ Sometimes true	4 ▼ Often true	5 ▼ Very often or always true
1. When I'm walking, I deliberately notice the sensations of my body moving.	1	2	3	4	5
2. I'm good at finding words to describe my feelings.	1	2	3	4	5
3. I criticize myself for having irrational or inappropriate emotions.*	1	2	3	4	5
4. I perceive my feelings and emotions without having to react to them.	1	2	3	4	5
5. When I do things, my mind wanders off and I'm easily distracted.*	1	2	3	4	5
6. When I take a shower or bath, I stay alert to the sensations of water on my body.	1	2	3	4	5
7. I can easily put my beliefs, opinions, and expectations into words.	1	2	3	4	5
8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.*	1	2	3	4	5
9. I watch my feelings without getting lost in them.	1	2	3	4	5
10. I tell myself I shouldn't be feeling the way I'm feeling.*	1	2	3	4	5
11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	1	2	3	4	5
12. It's hard for me to find the words to describe what I'm thinking.*	1	2	3	4	5
13. I am easily distracted.*	1	2	3	4	5
14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.*	1	2	3	4	5
15. I pay attention to sensations, such as the wind in my hair or sun on my face.	1	2	3	4	5
16. I have trouble thinking of the right words to express how I feel about things.*	1	2	3	4	5
17. I make judgments about whether my thoughts are good or bad.*	1	2	3	4	5
18. I find it difficult to stay focused on what's happening in the present.*	1	2	3	4	5
19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	1	2	3	4	5
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	1	2	3	4	5
21. In difficult situations, I can pause without immediately reacting.	1	2	3	4	5
22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.*	1	2	3	4	5
23. It seems I am "running on automatic" without much awareness of what I'm doing.*	1	2	3	4	5
24. When I have distressing thoughts or images, I feel calm soon after.	1	2	3	4	5
25. I tell myself that I shouldn't be thinking the way I'm thinking.*	1	2	3	4	5
26. I notice the smells and aromas of things.	1	2	3	4	5
27. Even when I'm feeling terribly upset, I can find a way to put it into words.	1	2	3	4	5
28. I rush through activities without being really attentive to them.*	1	2	3	4	5
29. When I have distressing thoughts or images I am able to just notice them without reacting.	1	2	3	4	5
30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.*	1	2	3	4	5
31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.	1	2	3	4	5
32. My natural tendency is to put my experiences into words.	1	2	3	4	5

33.	When I have distressing thoughts or images, I just notice them and let them go.	1	2	3	4	5
34.	I do jobs or tasks automatically without being aware of what I'm doing.*	1	2	3	4	5
35.	When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.*	1	2	3	4	5
36.	I pay attention to how my emotions affect my thoughts and behavior.	1	2	3	4	5
37.	I can usually describe how I feel at the moment in considerable detail.	1	2	3	4	5
38.	I find myself doing things without paying attention.*	1	2	3	4	5
39.	I disapprove of myself when I have irrational ideas.*	1	2	3	4	5

Generalized Self-Efficacy

Please answer the following questions concerning various beliefs about yourself by choosing one of the four alternatives that best reflects your answer.

1	2	3	4
▼	▼	▼	▼
Not at all True	Barely True	Moderately True	Exactly True

- | | | | | |
|--|---|---|---|---|
| 1. I can always manage to solve difficult problems at work if I try hard enough.** | 1 | 2 | 3 | 4 |
| 2. If someone opposes me, I can find means and ways to get what I want. | 1 | 2 | 3 | 4 |
| 3. It is easy for me to stick to my aims and accomplish my health and wellness goals.** | 1 | 2 | 3 | 4 |
| 4. I am confident that I could deal efficiently with unexpected events in my work and personal life.** | 1 | 2 | 3 | 4 |
| 5. Thanks to my resourcefulness, I know how to handle unforeseen situations. | 1 | 2 | 3 | 4 |
| 6. I can solve most personal wellness problems if I invest the necessary effort.** | 1 | 2 | 3 | 4 |
| 7. I can remain calm when facing difficulties because I can rely on my coping abilities. | 1 | 2 | 3 | 4 |
| 8. When I am confronted with a problem, I can usually find several solutions. | 1 | 2 | 3 | 4 |
| 9. If I am in a bind, I can usually think of something to do. | 1 | 2 | 3 | 4 |
| 10. No matter what comes my way, I'm usually able to handle it. | 1 | 2 | 3 | 4 |

Appendix C: Experimental Interventions

Maintaining Well-Being

Workaholism:

An excessive need to work that creates a noticeable disturbance in bodily health, personal happiness, interpersonal relationships, and social functioning.

Employee Wellness Program

How can you manage workaholism?

- 1 Eat lunch with a friend.
Eating lunch with a friend will help separate you from the presence of work. Confide in the friend and request to not allow the conversation to drift towards work.
- 2 Prioritize.
Take time to figure out what is most important to you. Make lists of your priorities, keeping in mind what makes you, as well as the others around you (e.g., family) the most satisfied.
- 3 Take a walk.
Force yourself to disconnect from work to take a short walk. Use a pedometer and set a minimum number of steps that must be achieved each day.
- 4 Meditate.
Take 10 minutes to disconnect from the busy world and spend time in meditation. No previous experience is required. Simply find a quiet place to relax and release mental and physical tension, removing oneself from daily stressors.



Benefits of decreased workaholism:

- Improved physical health
- Avoid burnout
- Increased enjoyment of non-work activities

Symptoms of workaholism:

- Work-family conflict
- Decreased job satisfaction
- Increased stress levels

Make it happen! Over the next week:

- Develop and begin a daily routine of non-work activities. Aim for at least two additional activities than in your current routine.
 - Activities could include exercise, meditation, or reading a book.
- Avoid cramming the non-work activities into an already busy schedule filled with work. Use the new activities as a replacement for time spent focusing on work.

DON'T STOP THERE: Continue to prioritize your life. Make time for yourself and enjoy each moment.

Maintaining Well-Being

Work Stress:

The adverse reaction people have to excessive pressures or other types of demand placed on them at work.

Employee Wellness Program

How can you manage work stress?

- 1 Set well-defined and realistic goals and time frames for yourself. Ensure that you have the time and mental capacity before taking on additional responsibilities.
- 2 Add good nutrition and exercise. When your body has the nutrition it needs it is more resistant to stress.
- 3 Get enough sleep. Sleep helps your body to restore, build your immune system, and relaxes your muscles.
- 4 Practice relaxation techniques. Allow time to relax during times of high stress. Deep breathing and flexing and then relaxing your muscles can help you achieve a state of relaxation.



Benefits of stress reduction:

- Increased productivity
- Increased health
- Increased happiness

Symptoms of excessive stress:

- Trouble concentrating
- Muscle tension, headaches, and stomach problems
- Feeling anxious, irritable, or depressed

Make it happen! Over the next week:

- Allow yourself 10 minutes the next time you are feeling stressed and:
 - Write down your thoughts, feelings, and sensations at the time.
 - Take 10 deep breaths. On each inhale, flex a different muscle (start with your arms and work down to your feet) releasing the tension with each exhale.
- Create a planner, detailing the what, why, when, and who for the events in the next 7 days.

DON'T STOP THERE: Stress management is a process. Work daily on your stress management techniques!

Maintaining Well-Being

Job Satisfaction:

Any combination of circumstances that allows an individual to say "I am satisfied with my job."



Employee Wellness Program

How can you manage job satisfaction?

- 1 Create new challenges.
Take on a new project that can motivate you and offer a sense of growth. Start small, achieving set goals, before moving onto larger ones.
- 2 Mentor a colleague.
Begin to assist less experienced team members. Offer advice and share experiences to challenge yourself and observe your positive influence on others.
- 3 Expand your skills.
Seek new learning opportunities related to your work. Ask a supervisor about training to learn about different work tasks or attend workshops to learn new skills.
- 4 Support your passion.
Focus on how work outcomes (e.g., pay) help to support your passions. Develop hobbies outside of the workplace that are made possible by the support your job provides you.

Benefits of increased job satisfaction:

- Reduced work stress
- Increased productivity
- Positive mental health

Symptoms of low job satisfaction:

- Decreased morale
- Low feelings of self-worth
- Decreased motivation

Make it happen! Over the next week:

- Take time to briefly describe aspects of your work life that cause you to feel satisfied, as well as aspects that cause you to experience dissatisfaction.
- Create a pair of goals in which you aim to increase one positive aspect of your work life, while also working towards improvement of a negative aspect.

DON'T STOP THERE: Continue to strive to achieve set goals, improving many features of your work life.

Maintaining Well-Being

Health:

A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Employee Wellness Program

How can you manage your physical health?

- 1 Add to your diet.
Add new and interesting foods to your diet. A variety of fruits, vegetables, nuts, grains, and oils benefit us in many ways. They naturally increase our well-being and energy levels. Try in-season fruits, kale, almonds, and multi-grain breads.
- 2 Plan for exercise.
Planning to exercise goes beyond finding the time. Begin by setting realistic goals. Use the buddy system and find a workout partner to stay accountable. Finally, research exercise programs and mix up your routine often.
- 3 Clear the air.
Quitting to smoke tobacco can be a difficult task. To greatly improve your health, take a multi-step approach to quitting. Clearly define why you are quitting and set up a healthy reward system to enjoy the absence of the unhealthy habit.
- 4 Count and measure.
Excessive alcohol consumption harms individual well-being in many ways. Counting and measuring your drinks is the first step to setting realistic goals to reduce your alcohol consumption. Seek help if you are having trouble reducing your consumption.



Benefits of improved physical health:

- Increased energy levels
- Improved mood
- Reduced risk of chronic illness

Symptoms of decreased physical health:

- Poor/disrupted sleep
- Unpredictable appetite and cravings
- Irregular bowel movements

Make it happen! Over the next week:

- Research an assortment of exercise programs, readily available on the Internet, selecting one that interests you.
 - At your home, gym, or outdoors begin the exercise program, aiming for 30 minutes of exercise 4 times a week. Work at an intensity to break a sweat.
- Incorporate two new fruits or vegetables into your diet, enjoying them at least twice throughout the week.

DON'T STOP THERE: Work daily on your physical health and be patient for results. Make health a lifestyle.

Appendix D: Control Interventions

Improving Employee Life

Employee Wellness Program



Be Proactive

Being proactive is about taking responsibility for the outcomes you experience in your life. You must use foresight, plan, and act ahead of anticipated events. Taking initiative and aligning your decisions with your life goals increases the success of your life.

Become more proactive:

- Self reflect to determine what is important to you
- Create action steps or a checklist for accomplishing daily tasks
- Anticipate problems before they arise
- Develop a problem-solving mentality, instead of dwelling on their existence

Act	Predict	Question
Don't obsess about planning and fail to act. Planning should be used to motivate calculated first steps. Taking the step is what being proactive is about.	Anticipate future challenges and begin to prepare and develop the necessary skill set now.	If you find yourself constantly being reactive or "fighting fires", question your approach. Look for ways to better prepare for future events.

Improving Employee Life

Employee Wellness Program

Put First Things First

As important as successfully completing work tasks, completing tasks in the correct order can help produce unforeseen benefits. Putting first things first is about balancing responsibilities in order to put the most important tasks first. Learning how to plan, prioritize and strategically decline unnecessary responsibilities allows you to not become overextended.



Benefits received from putting first things first:

- Enhanced focus
- Increased time for personal priorities and not just problem-solving or “fighting fires”
- Concentrated effort to successfully accomplish the most important tasks

Put First Things First Today:

Get organized:

- Develop a calendar for important events and appointments
- Create a detailed “to-do” list and a system of reminders

Prioritize:

- Clarify values and goals
- Organize tasks to maximize progress to the accomplishment of your personal goals
- Work daily to concentrate on important tasks and learn to say no to excess tasks

Improving Employee Life

Employee Wellness Program



Begin with the End in Mind

Physical outcomes in life, such as success, are a reflection of the mental ideas you hold. In order to be successful you must visualize who you are and what you wish to accomplish.

Beginning with the end in mind is about focusing each day on the vision of your desired direction.

Begin with the end in mind by creating a **Personal Mission Statement**. Include:

- Personal values**
- Life goals**
- Individual approach to accomplishing your goals**

- An important starting point to beginning with the end in mind is to spend time in thought. Search within yourself to determine what is most important to you.
- Create your goals around your self-discoveries.





Improving Employee Life



Employee Wellness Program



Synergize

Synergy is the effective use of teamwork, in order to find bright new solutions to problems. It is a process of collaboration, allowing the group to benefit from each individual's unique characteristics. Open-mindedness is key to allow synergy to occur between people with varying psychological differences. When used effectively, more efficient solutions are discovered, which would not otherwise have been possible.

Inspire synergy within a group

- Share your vision and encourage the vision of others
 - Express your values and goals and listen to others' personal beliefs
- Demonstrate trust and respect
- Consistently inspire a positive environment

Synergized work groups should feel positive, respected, creative, and enthusiastic to collectively attain one another's goals.

