ABSTRACT

Jenna M. Hartinger. WORKAHOLISM AND WORK-LIFE IMBALANCE: THE POTENTIAL INFLUENCE ON HEALTH VARIABLES. (Under the direction of Dr. Shahnaz Aziz) Department of Psychology, April 2010.

The purpose of this study was to determine if the dimensions of workaholism (i.e., compulsive tendencies, control, and impaired communication/self-absorption), as measured by Robinson's (1996) Work Addiction Risk Test, and work-life imbalance were related to health variables such as BMI, weekly exercise, and the existence of health issues (e.g., self-report and/or family history of Type II diabetes, heart disease, high cholesterol). The dimensions of the WART and work-life imbalance were used as predictors and the health variables were used as the criteria. Personal demographic variables (e.g., age, gender, race, marital status) served as the control. The results indicated that there were numerous relationships between the workaholism and work-life imbalance variables and the health variables. The compulsive tendencies dimension, control dimension, and total WART score were significantly positively related to family history of heart disease and family history of high cholesterol. Work-life imbalance was significantly positively related to high cholesterol. Study limitations, directions for future research, and practical implications are discussed.

WORKAHOLISM AND WORK-LIFE IMBALANCE:

THE POTENTIAL INFLUENCE ON HEALTH VARIABLES

A Thesis Defense

Presented to

the Faculty of the Department of Psychology

East Carolina University

In Partial Fulfillment

of the Requirement for the Degree of

Master of Arts in Psychology

by

Jenna Hartinger

April 5th, 2010

WORKAHOLISM AND WORK-LIFE IMBALANCE:

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ACKNOWLEDGEMENTS

I would like to sincerely thank Dr. Shahnaz Aziz for all of her support throughout the completion of this project. It was the guidance and encouragement of Dr. Aziz that ensured the successful completion of this thesis and I am very thankful for all of her hard work. I would also like to thank Dr. Karl Wuensch, Dr. William Grossnickle, and Dr. John Cope for their time, recommendations, and assistance.

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CHAPTER I: INTRODUCTION

Workaholism is a term that was first used by Oates in 1971 in reference to an individual's compulsive work behavior, similar to those of individuals with other types of addictions. Oates (1971) recognized the workaholic's compulsion and uncontrollable need to work, which in turn sparked an interest in the topic (Seybold & Salomone, 1994). Ever since the term *workaholism* was first used almost 40 years ago, popularity of the topic has risen both within the popular press and within the study of work. Although the study of workaholism has been a popular topic in recent years, there are still very few empirical studies regarding the addiction (Aziz & Zickar, 2006; Burke, 2000a; Douglas & Morris, 2006; Robinson, 1996). One of the main reasons for few empirical studies on workaholism, is due to a lack of agreement on a single definition of the addiction. Without a single definition for the term, measurement and assessment of the condition has been very difficult (Burke, 2000c).

Consensus has yet to be established on whether workaholism is a positive or negative condition, and whether the disorder should be rewarded or discouraged within an organization. Even though most researchers identify workaholism as a negative condition, others "construe workaholism as a state with positive consequences for both workaholics and organizations they work for" (Taris, Schaufeli, & Verhoeven, 2005, p. 38). Although there is still some disagreement on the topic, several different aspects of workaholism have been at the center of recent psychological research, including the effect the disorder can have both on an individual's health and on the organization itself (Burke & Cooper, 2008). It is important for researchers to further examine workaholism and the role that it plays in order to help promote a healthy work force and to minimize health costs for employers. Therefore, the current study was designed to

examine whether facets of workaholism and work-life imbalance are associated with poor health conditions, such as obesity, heart disease, high cholesterol, and Type II diabetes.

What is Workaholism?

There have been many disagreements on an actual definition of the term workaholism due to conflicting "opinions, observations, and conclusions about workaholism and its impact on organizations, on the workaholic, and on the families" (Douglas & Morris, 2006, p. 394). Some researchers have found that workaholic individuals, along with their supervisors, consider themselves to be very productive, motivated, and satisfied due to the addiction (Burke, 2000a). Others, however, have compared the disorder to several other types of addiction, such as alcoholism, where the worker is seen as an unhappy, unproductive, and dissatisfied individual who is the source of problems with other workers within the organization (Burke, 2000a). Although there are differing opinions, workaholism is typically identified by addictive work habits and the degree to which "excessive work interferes with physical health, personal happiness, or intimate and social relationships" (Robinson, 1996, p. 447). More recent studies have sought to identify whether workaholism should be defined as a syndrome (Aziz & Zickar, 2006; Piotrowski & Vodanovich, 2006). A syndrome is defined as "a term applied to a group of symptoms occurring regularly and thus constituting a disease to which a particular name is given" and is used when "the full picture of a condition as a true entity has not yet been defined" (Aziz & Zickar, 2006, p. 53). Findings from studies by both Aziz and Zickar (2006) and Piotrowski and Vodanovich (2006) have confirmed that workaholism can indeed be identified as a syndrome.

According to Piotrowski and Vodanovich (2006), the workaholism syndrome is thought to be a set of behaviors that worsen over time and progress through specific stages. In the stages

of the early development of workaholism, workaholic behaviors, which stem from a combination of individual characteristics, personal responsibilities, and stressors, do not tend to get in the way of functioning (Piotrowski & Vodanovich, 2006). As time progresses, however, these behaviors intensify and become more frequent, leading to interference with various daily responsibilities. During the later stages of the progression, work serves as a reinforcer to the individual, and all other areas of the individual's life, including relationships, life satisfaction, and physical health, begin to decline noticeably (Piotrowski & Vodanovich, 2006). The workaholic behaviors eventually cause the individual to become dysfunctional, exhibiting the full workaholic syndrome (Piotrowski & Vodanovich, 2006).

Although there are numerous definitions of the term throughout the literature, in the current study, workaholism will be defined as a progressive and compulsive addiction to work. As in Aziz, Adkins, Walker, & Wuensch (2010), workaholism is defined in the current study as a unidimensional construct in which satisfaction is derived only from work, while all other areas of life are neglected. Areas that are often neglected include social relationships, leisure activities, physical health, and family responsibilities (Robinson, 1996). Workaholics also experience problems associated with many other types of addictions, including identity issues, rigid thinking, withdrawal symptoms, and denial (Aziz et al., 2010).

History of the Research on Workaholism

Although the term "workaholic" has been used for almost 40 years, the actual study of workaholism is fairly recent. The majority of the early research on workaholism has focused on both developing a clear definition of the term, and on the development of a valid measure of the syndrome. As researchers such as Burke (2000b) have pointed out, it is difficult to make substantial progress in understanding a phenomenon until it can actually be defined and

researched. Most of the difficulty has stemmed from the fact that such varying definitions of the disorder exist. Various definitions include: individuals who work at least 50 hours a week, individuals who have an irrational commitment to work, those who devote more time than is demanded to work, and individuals who neglect other areas of their life outside of work (Burke, 2000b). In order to establish empirical data on workaholism, researchers first had to agree upon a definition and develop a valid measure of the addiction.

One of the most successful attempts at defining the workaholism construct and developing a valid measure was made by Spence and Robbins (1992). A workaholic was defined by Spence and Robbins as a person exhibiting properties of high involvement in work, high levels of work drive, and low levels of work enjoyment. These three properties, comprising the workaholic triad, were seen as independent of one another, in the sense that someone could be high on one property and low on another (Spence & Robbins, 1992). Work involvement refers to making constructive use of time, drive refers to feeling compelled to work because of an inner pressure to succeed, and enjoyment refers to the amount of pleasure gained from work (Spence & Robbins, 1992). Three self-report scales were developed to measure the workaholic triad. Cluster analyses were performed on the dimensions of the workaholic triad. In turn, a six-category classification system was developed (Spence & Robbins, 1992). These worker types consisted of: work enthusiasts (high on work involvement and enjoyment, low on drive), workaholics (high on work involvement and drive, low on enjoyment), relaxed workers (low on work involvement and drive, high on enjoyment), unengaged workers (low on all three dimensions), enthusiastic workaholics (high on all three dimensions), and disenchanted workers (low on work involvement and enjoyment, high on drive) (Spence & Robbins, 1992). The definition of workaholism and the measure developed by Spence and Robbins are the most

commonly used in the empirical research conducted on workaholism, due to the fact that it was the first research definition and reliability and validity issues regarding their measure can be easily assessed (Burke, 2000b). This classification system has also led to many studies comparing the workaholic and the work enthusiast, viewing the work enthusiast as a more healthy type of worker (Bonebright, Clay, & Ankenmann, 2000).

More recently, research efforts have been focused on examining the relationship between workaholism and work-life imbalance. The term work-family imbalance was originally used in reference to the workaholic's struggle to balance family needs with work, while failing to consider other areas of non-work life that were being neglected (Aziz et al., 2010). After recognizing that other areas were also being affected, Fisher (2001) introduced the term work-life imbalance. Work-life imbalance is an occupational stressor based on the amount of time spent at work in comparison to the amount of time spent on other activities, a lack of energy available after work for non-work related activities, and a strain between the demands of work life and personal life (Aziz & Cunningham, 2008). A study conducted by Bonebright and colleagues (2000) examined the differences between workaholics and nonworkaholics with respect to work-life balance, life satisfaction, and purpose in life. Workaholic behaviors were hypothesized to disrupt the balance between work and personal time, leading to neglect in areas including interpersonal relationships, recreation, relaxation, and renewal (Bonebright et al., 2000). Up until this point, researchers had failed to examine the relationship between workaholism and psychological well-being. Two important indicators of psychological well-being, life satisfaction and purpose in life, were also examined by Bonebright and colleagues. Findings indicated that various types of workaholics experienced significantly more work-life

imbalance than nonworkaholics, while also experiencing significantly less life satisfaction and less purpose in life than nonworkaholics.

Recent studies have focused on whether demographic factors, such as gender and race, play a role in the relationship between workaholism and work-life imbalance. Aziz and Cunningham (2008) examined the relationship between workaholism and both work stress and work-life imbalance, while considering gender as a moderator. Aziz and Cunningham examined whether women were experiencing more work-life imbalance while trying to handle multiple roles (e.g., provider, caregiver), suggesting higher levels of work-life imbalance for workaholic women. Findings indicated that work-life imbalance was equally correlated with workaholism for both men and women. Similarly, Aziz and colleagues (2010) also examined whether cultural origin had a moderating effect on the relationship between workaholism and work-life balance. Aziz et al. hypothesized that African Americans may be more likely to believe that they are being deprived of rewards irregardless of effort, and as a result become resentful and withdraw from work. As a result, it was hypothesized that African Americans would score lower on workaholism and work-life imbalance than Caucasians. Similar to gender, cultural origin was not found to be a moderator between workaholism and work-life imbalance, with no significant differences between mean scores for Caucasians and African Americans (Aziz et al., 2010).

Factors Contributing to Workaholism

Recently, there has been a growing interest in the types of individual characteristics and behaviors that might influence the development of workaholism. According to Machlowitz (1980), there are six common traits that workaholics tend to share: they are competitive, intense, and driven individuals, they have self-doubts about their abilities, they prefer working over leisure activities, they will work anytime and anywhere when given the opportunity, they strive

to make the most of their time, and they are unable to make the distinction between business and pleasure. Similarly, Robinson (1996) suggested possible warning signs of workaholism, including a constant sense of time urgency, a need to control others and situations, constant judging of themselves and others, difficulty maintaining both work and personal relationships, participation in work binges, difficulty enjoying leisure time, mental preoccupation with work, irritability and impatience, low self-esteem, and neglect of personal needs, sleep, and leisure activities.

Robinson (1996) suggests that there is a significant overlap between Type A behavior and work addiction, in that both types of individuals often display an intense, driven, and impatient way of life. Individuals displaying Type A behavior are often characterized as being "hard-driven, competitive, hostile, and hurried" as opposed to those displaying Type B behavior who are "relaxed, easygoing, and not overly ambitious" (p. 450). Other studies suggest that workaholics are often more interested in skill and expertise than they are in emotion, due to the sense of control they strive to experience (Robinson, 2001). The importance of expertise over emotion is also evident in the fact that workaholics tend to have higher scores on the Thinking scale of the Myers-Briggs personality test than they do on the Feeling scale (Robinson, 2001).

Along with individual factors, there appear to be a number of external factors that can contribute to the development of workaholism as well. One of the biggest concerns has to do with the fact that workaholism is often praised and even expected in the workplace (Griffiths, 2005). Many researchers have been interested in the role that organizational climate plays in the development of workaholism. Organizational climate is defined as a "perception of psychologically important aspects of the work environment" and acts as a "potential influence on employees' workplace behavior and job satisfaction" (Johnstone & Johnston, 2005, p.182).

Organizations typically promote the types of work-life imbalance behaviors that are associated with workaholism (Johnstone & Johnston, 2005). Increasing work demands and pressure to contribute more time to the organization have been suspected to be contributors to the development and increasing cases of workaholism (Griffiths, 2005; Johnstone & Johnston, 2005). Work pressure has been found to be positively correlated with drive scores and negatively correlated with work enjoyment scores on Spence and Robbins' Workaholism Triad Scales (Johnstone & Johnston, 2005). Workaholism has also been found to increase with the added work pressure associated with worsening economic conditions (Douglas & Morris, 2006).

Spence and Robbins (1992), along with many others, have examined the importance of the number of hours worked by an individual. There has been some disagreement among researchers on whether the number of hours an individual works should be the defining characteristic of workaholism. For example, as cited in Spence and Robbins (1992), Mosier defined workaholics as individuals who work at least 50 hours a week, whereas Machlowitz stated that the distinguishing factor is not the number of hours worked, but the attitude individuals have towards their work. Over time, most researchers have come to agree with Machlowitz. McMillian, Brady, O'Driscoll and Marsh (2002) concluded that hours worked did not define workaholism because so many other factors come into play. McMillian et al. explained that there are many other reasons besides workaholism, such as hopes of a promotion or saving for travel, that may cause an individual to work long hours. They also proposed that number of hours may not even be a reliable estimate of time spent working because workaholics may discount the time they spend thinking about work. While most workaholics tend to work an excessive, and sometimes unhealthy number of hours each week, it has been concluded that the

number of hours worked should not be the only measure used when trying to identify whether or not an individual is a workaholic (McMillian et al., 2002).

Another external factor suspected to contribute to the development of workaholism is the recent advancement in the area of technology. According to Porter (1996), current technological advances have resulted in more support for workaholics wishing to do work outside of the office. In earlier years, it was much easier to separate work from leisure because people did not have as many opportunities to bring their work into the home (Porter, 1996). Due to technological advances, workaholics are now granted much easier access to their work after they leave the office. Workaholics are now using personal computers, cell phones, e-mail, and wireless Internet connections to their benefit, allowing for instant contact with work. All of these technological advances can be seen as "conveniences readily available for relief" when the workaholic decides to engage in work during time that should otherwise be spent in leisure or on non-work related responsibilities (Porter, 1996, p. 76).

Effects of Workaholism

Although the study of workaholism has faced a definitional problem, leading to few empirical studies, it has become obvious that it is a condition that affects various aspects of the workaholic's life. Within the organization, workaholic behaviors have been found to cause issues when it comes to forming and maintaining relationships with coworkers (Hodson, 2004). Social relationships within the workplace have been found to provide a sense of meaning, identity, and belonging, but for workaholics this is usually not the case (Hodson, 2004). Conflicts tend to arise in the workplace because of workaholic tendencies, including a "hard-driving, urgent, impatient approach to life" (Robinson, 1996, p. 450). Issues often arise with coworkers when a workaholic is faced with a team situation. In most cases, workaholics are

unable to delegate responsibility to anyone else and create a competitive atmosphere that can be destructive among coworkers (Seybold & Salomone, 1994). Eventually coworkers make attempts to decrease their direct contact with the workaholic due to the unrealistic demands and expectations that are associated with the work-addicted individual (Porter, 1996).

In terms of work-life balance, the influence of workaholism on the family has received a considerable amount of attention in the literature (e.g., Robinson, 1998; Robinson, 2000a; Robinson, 2000b; Robinson 2000c). Both the spouses and the children of workaholics are subjected to the behavior of the workaholic individual, which inevitably becomes a source of family conflict (Robinson, 1998). Conflict will typically arise due to the self-centered addictive behaviors, the schedule of the workaholic determining the schedules of the other family members, and the fact that workaholics "need an overabundance of attention and want family members to cater to their wishes" (Robinson, 1998, p. 69). Similar to spouses of individuals with other types of addiction, women who identified their husbands as workaholics reported more negative feelings towards their husbands, greater marital estrangement, and a greater external locus of control than did women with non-workaholic spouses (Robinson, Carroll, & Flowers, 2001). A survey conducted by the American Academy of Matrimonial Lawyers cited neglect due to preoccupation with work as one of the top four leading causes of divorce (Robinson, 2000c). Children of workaholics often suffer from high anxiety and are resentful of their parent's absence both physically and emotionally (Robinson, 2000b).

Several different types of health issues, including physical health concerns, have been identified among workaholics. Studies have found that the workaholic lifestyle can lead to physical issues including coronary heart disease and the development of a secondary type of addiction, such as alcoholism or overeating (Seybold & Salomone, 1994). Workaholics have

also been found to suffer from more subjective health complaints than nonworkaholics (Andreassen, Ursin, & Eriksen, 2007). Subjective health complaints are health complaints reported with no physical or objective findings available (Andreassen et al., 2007). The reason behind the poor health of workaholics is believed to stem from the fact that workaholics do not give themselves sufficient time to recover from the strenuous effort that they put forth on a daily basis (Taris et al., 2005), and because they often ignore or do not notice warning signs such as aches and pains or reduced ability (Robinson, 2000a).

Andreassen et al. (2007) found that many mental and psychological health issues are also reported among work-addicted individuals. One of the most researched negative mental health outcomes associated with workaholism is burnout. Burnout is defined as "a syndrome of emotional exhaustion, cynicism, and low professional and self-efficacy that can occur among individuals that work with people" (Andreassen et al., 2007, p. 617). Other mental health issues that occur among workaholics are high levels of stress and depression that are associated with the long hours and strained relationships that they encounter on a daily basis (Andreassen et al., 2007). Many of the negative mental health outcomes that are associated with workaholics are only found among the non-enthusiastic workaholics, who have low scores on work enjoyment (Andreassen et al., 2007). This finding implies that as long as workaholics enjoy their work, they typically do not experience as many mental health concerns as those who have lower levels of work enjoyment. However, workaholics generally have low levels of work enjoyment, accounting for numerous mental health concerns reported among individuals with work addictions. Bonebright et al. (2000) also reported that even when workaholics are aware of a persistent psychological problem likely caused by their excessive time spent working, they will still continue to work as they usually do.

Measuring Workaholism

It has been difficult for researchers to develop measures that can satisfy the wide range of the numerous definitions for the term workaholic. Several attempts have been made to develop a valid measure, including the Schedule for Nonadaptive and Adaptive Personality workaholism scale (SNAP-Work), the Work Addiction Risk Test (WART), and the Workaholic Triad scales (Clark, 1993; Robinson 1996; Spence & Robbins, 1992). Each of these three measures was based on the developer's own definition of the term workaholism. Although all three measures have been used throughout the workaholism literature, the WART has become the most popular lately due to recent factor and validity analyses.

The WART was developed by Robinson (1996) to measure an individual's level of addiction to work. The WART is a 25-item self-report measure, in which participants are asked to rate their work habits and behaviors on a four-point response scale, ranging from 1 (very untrue of me) to 4 (very true of me). Scores on the WART range from 25 to 100, with higher scores indicating more work addiction tendencies. The WART has become one of the most prevalent measures of workaholism in recent literature, which has led to a more in-depth examination of the measure's psychometric properties. Recent factor analyses conducted by Flowers and Robinson (2002) revealed five dimensions for the WART: compulsive tendencies, control, impaired communication and self-absorption, inability to delegate, and self-worth (Taris et al., 2005). The compulsive tendencies dimension is comprised of nine items, all of which focus on working hard and the inability to detach and relax after work. The control dimension has seven items dealing with irritation when things do not go as planned. Five items regarding unwillingness to put time into relationships rather than work make up the impaired communication and self-absorption dimension. The inability to delegate dimension has one item

about preferring to work alone, and the self-worth dimension has two items which focus on the degree of interest in the results of work, rather than the process of work itself (Taris et al., 2005).

The reliability and validity of the WART have also been assessed (Robinson et al., 2001). Robinson et al. found the test-retest reliability of the WART to be .83 and the coefficient alpha for the measure was .85. Face validity was found among the five scales, and the 25 items were found to have high content validity when assessed by subject matter experts (Robinson et al., 2001). The WART has also demonstrated concurrent validity, with significant correlations with scores on the most commonly used Type A behavior measure, the Jenkins Activity Survey (Robinson et al., 2001).

What is Obesity?

Obesity has recently become one of the most troublesome public health issues. In 2004, approximately 66% of adults in the United States over the age of 20 were considered overweight and 32% of them were considered obese, with rates slightly higher for women than for men (Rodbard, Fox, & Grandy, 2009). Obesity is a condition in which the body has accumulated excessive masses of fat tissue, with the majority accumulating in the abdominal region (Stunkard & Platte, 2000). Obesity has been found to contribute to a decrease in physical health and also to a decrease in quality of life. Due to the increasing obesity epidemic, many efforts have been made to educate the population on the factors found to contribute to obesity, along with the effects of obesity. The Obesity Society recently reported that attempts to educate the public have caused the number of obesity awareness articles published in the United States to more than triple, from 8,000 published articles in 1999 to 30,000 in 2004 (Finkelstein, Brown, & Evans, 2008). Despite the numerous public health attempts to educate the public on the risks of obesity,

the number of overweight and obese adults has increased by roughly 21% in the past 10 years (Rodbard et al., 2009).

Factors Contributing to Obesity

Obesity has been found to develop in response to an interaction between genetic, environmental, and behavioral influences. There has been some debate on the amount of influence genes play in the development of obesity. Jequier (2002) argued that because the prevalence of obesity has increased rapidly over the past decade, the primary cause of obesity must lie in recent environmental and behavioral risk factors, as opposed to genetic influences. Obesity is characterized by an increase in the amount of body fat, which occurs as a result of energy imbalance. The energy balance equation,

Energy Stored = Energy Intake - Energy Excreted - Energy Expenditure,

requires balance between energy intake and energy expenditure in order to maintain body weight regulation (Jequier, 2002). An imbalance as small as 5% occurring on a daily basis can lead to a fat gain of 11 pounds in a single year and eventually lead to morbid obesity over a period of several years (Jequier, 2002). Studies show that genetic influences, such as a low metabolic rate, can account for an 11-22 pound weight gain over time (e.g., Jequier, 2002). In order for the genetic influence to induce obesity, a weight gain of more than 33 pounds would be required, indicating that other factors must also be contributing to the growing number of obesity cases (Jequier, 2002).

One of the most influential contributors to obesity is the adoption of unhealthy dietary habits. Lifestyle influences that promote the intake of fast food, foods with high caloric values, and sugar-sweetened drinks, have been found to induce a positive energy imbalance, thereby leading to weight gain (Marti, Moreno-Aliaga, Hebebrand, & Martinez, 2004). Dietary fat has

been recognized as the main nutrient to facilitate weight gain (Jequier, 2002). Jequier (2002) examined the various ways in which the relationship between dietary fat and obesity is supported. Four pathways were identified including: the higher percentage of energy content of fats than carbohydrates and protein, the fact that dietary fats are preferentially stored in the body over carbohydrates and protein, foods high in fat have weak appetite control signals, which often lead to over-consumption, and low fat diets rarely produce long-term effects due to low compliance rates (Jequier, 2002).

Jequier (2002) also reported that impaired control of the intake of food plays a role in the development of obesity as well. Impaired intake control can be assessed by examining three different time scales: satiation, satiety, and long-lasting control (Jequier, 2002). Satiation is used to measure "the suppression of hunger at the end of the meal," satiety measures "the period of time of absence of hunger between meals," and long-lasting control measures "a hormonal signal related to the size of the adipose tissue mass" (p. 14). Because fats have a less satisfying effect than carbohydrates and protein, over-consumption happens frequently to those individuals with unhealthy dietary habits (Jequier, 2002).

The issue of increased physical inactivity has also been found to be one of the contributing factors in the development of obesity. Similar to the influences that promote increased dietary fat intake, behavioral influences that promote a sedentary lifestyle have also been found to affect a positive energy imbalance leading to weight gain (Marti et al., 2004). Marti and colleagues (2004) report current findings on the relationship between physical inactivity and obesity. The presence of obesity has been found to be directly correlated with a reduction of physical activity. Several indirect indicators of obesity were reported, including the amount of time spent watching television, the number of cars owned by a household, and the

amount of leisure time spent engaged in physical activity (Marti et al., 2004). All of these indicators support the claim that a reduction in energy expenditure contributes to an energy imbalance, thereby leading to the development of obesity. An inverse relationship has been discovered between the amount of leisure time physical activity and Body Mass Index (BMI) (Marti et al., 2004). A positive correlation has also been found between the total amount of time a person spends sitting and BMI (Marti et al., 2004). Several statistically significant predictors of obesity have been discovered, including low participation rates in sport activities, a lack of pre-contemplation regarding exercise, and the amount of time spent sitting down on the job (Marti et al., 2004). A recent study among 3,549 men and 3,184 women ranging in age from 18 - 98 also demonstrated the inverse relationship between physical activity and body fat, along with a positive correlation between age and body fat (Marti et al., 2004). Overall, individuals who are overweight have been found to be less active during their leisure time than are non-overweight individuals. Data also indicate a strong correlation between unhealthy diets and physical inactivity, providing evidence for an interaction between the two factors (Marti et al., 2004).

Effects of Obesity

Obesity has been found to be a major contributor to several different diseases and disabilities. Kumanyika, Morabia, Ritenbaugh, & Antipatis (2002) reported that there are three main types of medical conditions in which obesity has been found to be a risk factor. The first category of medical conditions is life-threatening chronic diseases, which includes conditions such as heart disease, Type II diabetes, hypertension, stroke, and certain types of cancer. The second category, debilitating conditions, includes conditions such as osteoarthritis, gall bladder disease, infertility, sleep apnea, and skin problems. Debilitating conditions are not life threatening, but they greatly reduce the quality of life and are often costly for the individual. The

third category includes psychosocial problems such as clinical depression, low self-esteem, discrimination, and other various forms of social stigmatization (Kumanyika et al., 2002). Although early theories of obesity attributed its development to psychological problems, emotional problems are now viewed as a consequence of social stigmatization (Stunkard & Platte, 2000).

Rodbard et al. (2009) provided evidence of the burden that obesity has recently had on health care systems. Health care costs for treating obesity can be broken down into both direct and indirect costs. Direct costs are costs related with directly treating symptoms of obesity, and indirect costs cover issues such as lost work days and money lost due to restricted activity of the obese individual (Rodbard et al., 2009). In 2001, direct costs related to treating obesity-related cardiovascular issues totaled $31 billion, which was almost 20% of the total cost for the treatment of cardiovascular issues that year (Rodbard et al., 2009). Indirect costs of obesity in 2001 were more than $3.9 billion dollars, resulting from the productivity lost by 39.2 million missed work days (Rodbard et al., 2009). Similarly, Kumanyika et al. (2002) reported that obesity accounts for anywhere from 2 - 6% of total health care costs in developed countries worldwide. Obesity has become an issue of major public health concern, with evidence associating as much burden of morbidity with obesity as is associated with other public health concerns such as alcoholism, smoking, and poverty (Rodbard et al., 2009).

Few studies have examined the relationship between obesity and work-related issues. Rodbard and colleagues (2009) reported that obesity has been found to be significantly related to lower quality relationships within the workplace. Also, when compared with healthy employees, obese individuals were 1.7 times more likely to experience high absenteeism (Rodbard et al., 2009). Researchers have also indicated that obesity leads to physical limitations within the

workplace (e.g., Rodbard et al., 2009; Schulte et al., 2007). Obese workers have been found to experience the greatest limitations in the workplace, particularly in jobs that require manual labor (Rodbard et al., 2009). A positive correlation between obesity and increased short-term disability has also been discovered (Rodbard et al., 2009).

One of the major concerns regarding the rise of obesity has to do with obesity rates continuing to increase, despite a considerable effort to educate the public on its negative effects. Finkelstein et al. (2008) examined the relationship between the awareness of the risks of obesity and the behavioral response of individuals. Survey data have revealed that due to the recent increased media exposure of obesity, obesity is now recognized as a threat to public health by American adults (Finkelstein et al., 2008). Empirical evidence suggests that awareness alone is not enough to encourage prolonged behavioral changes. Although American adults are educated about the risks and adverse health effects of obesity, the obesity rates in the United States continue to rise (Finkelstein et al., 2008).

Measuring Obesity

Obesity is most commonly measured using Body Mass Index (BMI). BMI assesses an individual's weight in proportion to his or her height, in an effort to approximate the amount of body fat an individual possesses. BMI can be calculated using either of the following formulas provided by the Centers for Disease Control and Prevention (2009),

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m}^2\text{)}}$$

$$BMI = \frac{\text{weight (lbs) x 703}}{\text{height (in}^2\text{).}}$$

According to the Department of Health and Human Services, a BMI under 18.5 indicates that a person is underweight, normal BMI ranges from 18.5 - 24.9, BMI indicating that a person is overweight ranges from 25 - 29.9, and a BMI over 30 indicates that an individual is obese.

The Department of Health and Human Services (2009) reported that there are some limits associated with the current method used to calculate BMI, which may lead to both the overestimation and underestimation of body fat. Body fat may be overestimated in individuals with muscular builds and may be underestimated in individuals who are older or who have experienced a recent loss in muscle mass. Similarly, Daniels, Khoury, & Morrision (1997) caution against using BMI for comparisons of body fat between race or gender groups. Although Daniels et al.'s study on BMI accuracy between different races provided significant results, their sample was comprised of adolescents. Similar studies examining ethnic differences in BMI for adults have not produced consistent results (Daniels et al., 1997).

Workaholism and Obesity

At this point, very little research has been conducted regarding the relationship between workaholism and obesity. A few recent studies have addressed the fact that workaholics tend to work much longer hours than other employees, and as a result they have poor health-related behavior (Burke & Cooper, 2008). According to Burke and Cooper (2008), long work hours are thought to be associated with poor health behaviors, such as "smoking, coffee and alcohol consumption, lack of exercise, and a poor (unhealthy) diet" (p.11). The unhealthy behaviors often result in physiological changes, such as high blood pressure, obesity, diabetes, coronary

heart disease and poorer general health (Burke & Cooper, 2008). The reason suggested for this association between long hours and poor health is that the workaholic often does not give himself or herself enough time for recovery outside of work. The short-term physiological costs that are associated with working long hours are irreversible and can lead to long-term adverse health conditions (Burke & Cooper, 2008).

The relationship between work-related stress and obesity has also been a recent area of study. Although previous research has established the relationship between daily stressors and unhealthy eating behaviors, O'Conner, Jones, Conner, McMillian, and Ferguson (2008) were the first to further investigate work-related stressors. Different types of stressors have been found to cause different changes in eating behavior. Ego stressors and fear of failure typically lead to overeating, while physical threats have been found to lead to reduced intake (O'Conner et al., 2008). Work-related stressors, similar to ego stressors and fear of failure, were found to elicit a response of over consumption (O'Conner et al., 2008). This particular study identified work-related stressors as the type of stressor that had the strongest effects on between-meal snacking. Strong evidence supported the hypothesis that daily stressors were associated with "increased consumption of high diet and high sugar between-meal snack foods and also with perceived reduction in main meals and vegetable consumption" (O'Conner et al., 2008, p. 27).

Despite the fact that very little research has addressed the relationship between workaholism and obesity, existing studies do seem to imply that workaholism could lead to an unhealthy lifestyle (Rodbard et al., 2009; Burke & Cooper, 2008). Because workaholics are so absorbed with their work, they often exhibit work-life imbalance, which has been found to lead to adverse health conditions (Seybold & Salomone, 1994). Similarly, workaholics often report high levels of work stress due to strained relationships and the long hours they put in on the job

(Burke & Cooper, 2008). As mentioned above, studies have suggested a relationship between work-related stressors and overeating (O'Conner et al., 2008).

Current Study

The current study was designed to examine the relationship between various dimensions of workaholism and health variables (e.g., obesity, heart disease, high cholesterol, Type II diabetes). According to Flowers and Robinson (2002), three out of the five dimensions of the WART (i.e., compulsive tendencies, control, and impaired communication/self-absorption) have been found to properly classify individuals as workaholics 88.5% of the time. When using the total score from the WART, individuals were properly classified as workaholics 86.4% of the time (Flowers & Robinson, 2002). Based on this finding, the current study will examine the relationship between the dimensions of the WART and health-related issues (e.g., obesity, Type II diabetes, heart disease, high cholesterol). If the dimensions of workaholism are found to be associated with health problems, then perhaps organizations will find it in their best interest to no longer promote the types of work environments that encourage workaholic behaviors.

Research has indicated that working more than 11 hours a day is associated with three times more likelihood of developing coronary heart disease and four times more likelihood of developing diabetes (Burke & Cooper, 2008). Although the number of hours worked cannot be used as the defining characteristic of a workaholic, workaholics tend to work longer hours and have a much more difficult time disengaging from their work than nonworkaholics. Previous studies have already identified a relationship between long hours and increased chronic health issues (Burke & Cooper, 2008). Given that obesity and related issues have been found to be associated with higher health care costs (Rodbard et al., 2009; Kumanyika et al., 2002),

organizations can take the preventative measures necessary to promote a healthier work force and keep health care costs down.

Data from the current study will also be used to examine the relationship between work-life imbalance and health variables. Given that workaholics have trouble disengaging from work, they often neglect other areas of their non-work lives, which may include healthy eating and an active life style. Prior studies regarding work-life balance have focused primarily on family issues and relationships, failing to consider other aspects of non-work life that might be affected (Aziz & Zickar, 2006). Another goal of the current study is to expand upon previous work-life imbalance research and examine whether work-life imbalance predicts higher BMI measurements, along with the presence of several health issues (e.g., Type II diabetes, heart disease, high cholesterol). It is hypothesized that workaholics do not put the time or resources into properly maintaining their health, both in their leisure time and while at work. For reasons similar to those mentioned above, organizations may be able to use the current findings as motivation to promote a healthier life style among their employees.

Study Hypotheses

According to Flowers and Robinson (2002), three out of the five dimensions of the WART (i.e., compulsive tendencies, control, and impaired communication/self-absorption) have been found to be the best predictors of workaholism. Based on this finding, along with the low item totals for the two remaining dimensions (i.e., inability to delegate and self-worth), only the compulsive tendencies, control, and impaired communication/self-absorption dimensions of the WART were included in the hypotheses.

An individual who scores high on the compulsive tendencies dimension has an inability to detach and relax after work (Taris et al., 2005). Individuals who are unable to detach from

work are hypothesized to spend less time concerned with their health than people who are aware of their health and allow themselves proper time to recover. To summarize, they are less likely to be concerned with their health and less likely to engage in healthy behaviors due to an inability to detach.

> *Hypothesis 1* (H1). The compulsive tendencies dimension of the WART will be positively related to BMI, self-report and family history of Type II diabetes, heart disease, and high cholesterol, and negatively related to the amount of weekly exercise.

An individual with a high score on the control dimension is easily irritated when things do not go as planned (Taris et al., 2005). It is hypothesized that a workaholic would prefer to spend more time in the work environment where they feel they have the most control, than they would spend in a non-work environment. It is suggested that by working longer and harder for a sense of control, workaholics are less concerned with their health and with allowing themselves proper time to recover after work.

> *Hypothesis 2* (H2). The control dimension of the WART will be positively related to BMI, self-report and family history of Type II diabetes, heart disease, and high cholesterol, and negatively related to the amount of weekly exercise.

Individuals scoring high on the impaired communication/self-absorption dimension are unwilling to put time into relationships instead of work (Taris et al., 2005). It is predicted that workaholics scoring high on this dimension are neglecting their health along with their relationships. Because they are unwilling to dedicate the time to maintaining their relationships, they are not likely to be concerned with maintaining their health or any other non-work related area of their lives.

Hypothesis 3 (H3). The impaired communication/self-absorption dimension of the WART will be positively related to BMI, self-report and family history of Type II diabetes, heart disease, and high cholesterol, and negatively related to the amount of weekly exercise.

Given that higher scores on the WART indicate higher levels of workaholism, it is hypothesized that the more individuals are engaged in their relationship with work, the less they are focused on the various aspects of maintaining their health and taking the time to recover outside of work.

Hypothesis 4 (H4). Total scores on the WART will be positively related to BMI, self-report and family history of Type II diabetes, heart disease, and high cholesterol, and negatively related to the amount of weekly exercise.

Several recent studies have proposed the examination of other areas, outside of family relationships, that are affected by workaholism (e.g., Aziz & Zickar, 2006; Aziz & Cunningham, 2008; Aziz et al., 2009). It is hypothesized that physical health is one of the non-work areas that is neglected by workaholics. Because workaholics neglect areas including recreating, relaxation, and renewal (Bonebright et al., 2000), it is likely that they will experience more negative health outcomes.

Hypothesis 5 (H5). Work-life imbalance will be positively related to BMI, self-report and family history of Type II diabetes, heart disease, and high cholesterol, and negatively related to the amount of weekly exercise.

CHAPTER II: METHOD

Participants

Participants of this study were employees who worked in a variety of professional fields (e.g., business, education, sales). The sample included individuals in both managerial and non-managerial positions, primarily from the southeastern region of the United States. Participants were recruited by the principle investigator and were asked to distribute the survey link to other members of the professional community who may be willing to participate in this study. Due to response errors, some of the partially completed surveys were removed before data analysis. Surveys were included in this study only if 90% of the questions had been answered. Participation in this study was completely voluntary and participants were informed of their ability to withdraw from the study at any point without consequence. All survey responses were kept confidential, and participants remained completely anonymous throughout the duration of the entire study. Institutional Review Board (IRB) standards were precisely followed throughout the study and IRB materials (i.e., IRB approval form and consent forms) are presented in Appendix A.

Demographic information that was collected included age, gender, race, marital status, average number of hours worked per week, and how long the employee had been with his or her current organization. The sample included both men (46%) and women (54%) who held managerial (44%) positions as well as non-managerial positions (53%). The sample included a wide variety of ages, with participants ranging from: 25 and under (26%), 26-30 (18%), 31-35 (13%), 36-40 (11%), and over 40 (33%). Approximately 83% of respondents identified themselves as Caucasian, 4% as African American, .5% Native American, 1% Latin American, 8% Asian/Pacific Islander, and 4% Other. The sample included both married (60%) and

unmarried participants (38%), as well as a wide range of number of hours worked per week: 35 or less (16%), 36-40 (16%), 41-45 (26%), 46-50 (16%), 51-55 (12%) 56-60 (8%), over 60 (5%). Employees reported having been with their organizations anywhere from: less than one year (19%), 1-2 years (28%), 3-4 years (19%), 5-9 years (18%), 10-14 years (9%) to over 15 years (8%).

Procedure

Before being given access to the online survey, all participants were presented with the informed consent form. After exposure to the informed consent form, participants were sent a link to the study survey via electronic mail. The online survey measured workaholism, work-life imbalance, and demographic information, all of which can be found in Appendix B. The survey was created and administered via a secure online survey software company, SurveyMonkey.

Throughout the duration of the study, both confidentiality and anonymity of the participants was maintained. Participants were offered no form of compensation for their voluntary participation and were informed of their option to discontinue at any point in the process of completing the survey. Completion of the online survey required approximately 20 minutes. After the data were collected from all completed surveys, each of the three measures (i.e., workaholism, work-life imbalance, and demographic information) was independently scored. Data were then entered into Predictive Analytics SoftWare 17 (PASW) for statistical analysis.

Measures

Workaholism: Work Addiction Risk Test (WART). The WART is a 25-item self-report measure created by Robinson (1996) that was designed to measure addictive work behaviors. Participants were asked to rate all items on a four-point scale, ranging from 1 (very untrue of me)

to 4 (very true of me), in correspondence with how well each item described their own personal work habits. Scores on the WART can range from 25 to 100, with a higher score indicating a higher level of work addiction. In the current study, mean scores for all items of the WART were used for analyses, with a possible range of 1-4. The range of obtained scores in the current study was 1.64-3.76.

The compulsive tendencies dimension includes nine items (sample items include: "I seem to be in a hurry and racing against the clock," "I find myself doing two or three things at one time, such as eating lunch and writing a memo, while talking on the phone," and "I feel guilty when I am not working on something") and is comprised of item numbers 3, 5, 6, 7, 8, 15, 18, 19, and 20. Previous studies have reported an alpha of .90 for the dimension (Taris et al., 2005), while a Cronbach's alpha of .78 was found in the current study. The control dimension is made up of seven items (sample items include: "I get impatient when I have to wait for someone else or when something takes too long, such as long, slow-moving lines" and "I get angry when people don't meet my standards of perfection") and includes item numbers 2, 4, 11, 12, 16, 17, and 22. Previous studies have reported an alpha of .80, while a Cronbach's alpha of .75 was found in the current study (Taris et al., 2005). The impaired communication/self-absorption dimension includes five items (sample items include: "I dive into projects to get a head start before all phases have been finalized" and "I put more thought, time, and energy into my work than I do into my relationships with friends and loved ones") and is comprised of item numbers: 13, 21, 23, 24, and 25. Previous studies have reported an alpha of .62, while a Cronbach's alpha of .52 was found in the current study (Taris et al., 2005). The inability to delegate dimension includes one item, number 1 ("I prefer to do things myself rather than ask for help"), and two items comprise the self-worth dimension (a sample item includes: "I am more interested in the

final result of my work than in the process"). The self-worth dimension consists of item numbers 9 and 10. All 25 items on the WART are summed for a total work addiction score. None of the items are reverse scored. For analytical purposes, any survey in which less than 90% (less than 23 out of 25) of the items were completed was removed from the study. For surveys with missing data for less than 3 items, missing responses were replaced with the average of the participant's completed item responses within the same subscale. A copy of the WART can be found in Appendix B.

Work-life imbalance: Work-Family Conflict (WFC) and Family-Work Conflict (FWC) scales. The measure that was used to assess work-life imbalance is based on Netemeyer, Boles, & McMurrian's (1996) WFC and FWC scales. The WFC and FWC scales were combined in the current study, as has been done in prior studies (e.g., Aziz et al., 2010). Aziz and colleagues (2010) reported that previous studies using the combined scales found acceptable levels of reliability for the new combined measure. Therefore, in the current study, the WFC and FWC scales were combined to yield a total work-life imbalance score. As in the Aziz et al. (2010) study, items from Netemeyer et al.'s (1996) WFC and FWC scales were modified in order to measure work-life imbalance, as opposed to work-family imbalance. For example, the item "The demands of my family interfere with work-related activities" was modified to "The demands of my family, spouse/partner and/or friends interfere with work-related activities" (Aziz et al., 2010). For analytical purposes, any survey in which less than 90% (less than 9 out of 10) of the items were completed was removed from the study.

The work-life imbalance scale is comprised of ten self-report items on a Likert-type scale, with options ranging from 1 (strongly disagree) to 7 (strongly agree). All ten items are summed for a total work-life imbalance score. Possible scores range from 10 to 70, with higher

scores indicating higher levels of self-perceived work-life imbalance. In the current study, mean scores were used for all analyses, with a possible range of 1-7. The range of obtained scores was 1-5.4. A previous study by Aziz and colleagues (2009) found a Cronbach's alpha of .89 for the modified measure. A Cronbach's alpha of .85 was found in the current study. The work-life imbalance scale can be found in Appendix B.

Obesity: BMI. BMI is a measurement of height in proportion to body weight, used to approximate the amount of body fat an individual possesses. Higher BMI scores indicate a higher, more unhealthy level of body fat. Participants were asked to self-report their weight in pounds and their height in feet and inches. Height scores were then converted to inches and the equation reported by the Centers for Disease Control and Prevention (2009) was used to calculate BMI. For analytical purposes, any survey that did not include either a weight or height measurement was discarded.

Weekly exercise. A self-report item was included in the demographic portion of the questionnaire to assess average weekly exercise. Participants were asked to report on average how many times they exercised per week, with response options ranging from 0-8. This item can be found in the demographic section presented in Appendix B.

Disease history: Self-report and family history of Type II diabetes, heart disease, and high cholesterol. All remaining health issues were measured based on participant responses to health-related self-report items that were included in the demographic section of the questionnaire. Participants were asked to indicate if they were currently suffering from Type II diabetes, heart disease, or high cholesterol. Similarly, participants were also asked if they had a family history of the same three obesity-related diseases. The items pertaining to self-report and family history of these health-related issues can be found in Appendix B.

Demographics. In addition to the previously mentioned measures, personal demographic information including work and health-related information was also collected. Specifically, the following demographic information was collected: age, gender, race, marital status, and number of children. The work-related information collected included: number of hours worked per week, length of time at current organization, length of time in current position, career status, and income bracket. Health-related information included: height, weight, daily caloric intake, disease history, and amount of exercise per week. The demographic questions can be found in Appendix B.

Demographic information was coded according to the following schedule. Age was divided into five groups: "25 years and under" was coded as 1, "26 - 30" was coded as 2, "31 - 35" was coded as 3, "36 - 40" was coded as 4, and "Over 40" was coded as 5. For gender, men were coded as 1 and women were coded as 2. The following races were coded 1 - 6, respectively: Caucasian, African American, Native American, Latin American, Asian/Pacific Islander, and Other.

Data Analysis

Correlations and descriptive statistics were obtained for the personal demographic variables (e.g., age, gender, race, marital status), and the study variables (e.g., WART dimensions, total WART, health variables, work-life imbalance). A hierarchical regression analysis was employed in order to determine how much of the variance in the continuous health variables (i.e., BMI and weekly exercise) was accounted for by the dimensions of the WART and work-life imbalance. Binary logistic regressions were run for both the self-report and the family history of Type II diabetes, heart disease, and high cholesterol criterion variables. The predictors (i.e., demographic information, work-life imbalance, and the WART dimensions) were regressed

with each criterion in two separate blocks. The demographic information was entered into the first block to serve as a control. For the linear regression, race was recoded into two categories: Caucasian was coded 1, and African American, Native American, Latin American, Asian/Pacific Islander, and Other were coded 2. Marital status was coded 1 for not married and 2 for married. The dimensions of the WART and work-life imbalance were entered into the second block. The health variables served as the criteria, with eight separate regressions run for each criterion (i.e., BMI, weekly exercise, and self-report and family history of Type II diabetes, heart disease, and high cholesterol). Results of the regression analysis were examined to determine if any of the dimensions of the WART or work-life imbalance explained a significant amount of the variance on the health component, above and beyond the demographic information. A .05 criterion of statistical significance was employed for all analyses.

CHAPTER III: RESULTS

Data Screening

In the current study, a total of 207 surveys were filled out by the participants. Among the initial 207 participants, 11 of them neglected to answer at least 90% of the survey items and thus were removed from the study. The data from the remaining participants ($N = 196$) were used for all statistical analyses. Subscale scores were calculated for the dimensions of the WART. When subscale scores were calculated, if the subject had missing data on not more than one item in the compulsive tendencies, control, and impaired communication scales, the scale score was computed as the mean of the responses that were given. If the subject had missing data on more than one item in a scale, the scale score was set to missing. Due to the low item totals that comprise the inability to delegate (i.e., 1 item) and self-worth subscales (i.e., 2 items), all items had to be answered in order to be included in the analyses involving these two subscales.

Descriptive Statistics

The intercorrelations and descriptive statistics for all study variables are presented in Table 1. Significant positive correlations were found among the WART subscales. Specifically, the compulsive tendencies and self-worth subscales were significantly positively correlated with all other subscales of the WART. A significant positive correlation was found between all of the remaining subscales of the WART, with the exception of the inability to delegate subscale, which was not correlated with either the control or impaired communication subscales. All subscales of the WART were significantly positively correlated with the total WART score. Work-life imbalance was significantly positively correlated with the compulsive tendencies, control, and impaired communication subscales, along with the total WART score. Significant correlations were identified between two of the WART subscales and the demographic variables.

Specifically, men scored significantly higher than women on the inability to communicate subscale and increasing age was significantly associated with declining scores on the control subscale.

Several significant correlations were identified among the health variables, as well as between the health variables and demographics (see Table 1). Specifically, heart disease had a significant positive correlation with high cholesterol and age, and having heart disease was significantly more likely in men than in women. A significant negative correlation was found between BMI and weekly exercise, and BMI was significantly higher in men than in women; however, a significant positive correlation was found between BMI and age. High cholesterol was significantly positively correlated with family history of high cholesterol, age, and marital status, with married individuals reporting more cases of high cholesterol; high cholesterol was significantly more frequently found among men than among women. A significant negative correlation was found between family history of high cholesterol and age. Type II diabetes was significantly positively correlated with both age and marital status, with both older and married individuals reporting more cases of Type II diabetes. A significant positive correlation was found between weekly exercise and age and having a family history of Type II diabetes was significantly more likely in women than in men. Furthermore, there were significant positive correlations between all three family history health variables (i.e., heart disease, high cholesterol, and Type II diabetes).

As seen in Table 1, significant correlations were also found between the workaholism variables (e.g., work-life imbalance, WART subscales, total WART) and the health variables. Specifically, work-life imbalance was found to have a significant positive correlation with high cholesterol, thereby providing support for H5. That is, higher scores on work-life imbalance

were significantly correlated with high cholesterol. Also, the inability to delegate subscale was found to be significantly negatively correlated with high cholesterol. History of family heart disease was found to be significantly positively correlated with both the compulsive tendencies subscale and the control subscale. That is, higher scores on the compulsive tendencies and control subscales were correlated with a family history of heart disease, thereby providing partial support for both H1 and H2. Family history of high cholesterol was also found to be significantly positively correlated with both the compulsive tendencies and the control subscales. That is, higher scores on the compulsive tendencies and control subscales were correlated with a family history of high cholesterol, thereby providing partial support for both H1 and H2. A significant positive correlation was found between the total WART score and both family history of heart disease and family history of high cholesterol. That is, higher scores on the WART were correlated with a family history of both heart disease and high cholesterol, thereby providing partial support for H4.

Values on the diagonal of Table 1 represent the internal consistency of each scale, measured with Cronbach's alpha. All scales had reliabilities consistent with previous research and exhibited acceptable reliability coefficients (e.g., Aziz et al., 2009; Taris et al., 2005). The means, standard deviations, and ranges for each study variable are presented in Table 2. As seen in Table 2, the sample had slightly more women than men and more married than unmarried participants. The mean age was within the 31-35 range and the sample was comprised mainly of Caucasian participants. The average BMI for the sample was 26.88, which falls into the overweight category of 25-29.99. Participants reported more instances of family history of health issues than they did of self-reported health problems.

Table 1

Correlations for all Study Variables (*N* = 196)

Variable	CT	Con	IC	ID	SW	WAR	WLI	BMI	DB	HD	HC	EX	FDB	FHD	FHC	Gen	Age	Race	MS
CT	(.78)																		
Con	34**	(.75)																	
IC	.34**	.41**	(.52)																
ID	.18*	.12	.09	--															
SW	.23*	.37**	.16*	.15*	(.39)														
WAR	.80**	.75**	.66**	.27**	.47**	(.83)													
WLI	.37**	.32**	.37**	.01	.13	.45**	(.85)												
BMI	-.06	.04	.04	-.02	.05	-.01	.02	--											
DB	.03	-.01	.06	-.02	-.08	.01	-.10	.11	--										
HD	.01	-.07	.00	-.04	.06	-.02	.07	.07	-.03	--									
HC	.03	-.04	.07	-.15*	-.06	.00	.15*	.13	.03	.18*	--								
EX	.02	.03	.00	.09	-.05	.03	-.04	-.22*	.04	.01	-.02	--							
FDB	-.02	.01	.03	-.02	.05	.01	-.07	.04	.11	-.08	.04	-.03	--						
FHD	.14*	.16*	.04	.02	.01	.16*	.04	.03	.02	.07	.11	.02	.39**	--					
FHC	.18*	.20*	.08	.09	.07	.22*	.13	.04	.02	-.01	.18*	-.08	.26**	.42**	--				
Gen	.09	-.02	-.14*	-.07	-.05	-.01	-.10	-.25**	-.08	-.16*	-.21*	-.01	.17*	-.02	.08	--			
Age	.13	-.21*	.08	.00	-.08	-.03	-.04	.18*	.21*	.17*	.18*	.18*	.02	.08	-.15*	-.12	--		
Race	-.11	-.09	-.08	-.13	-.02	-.11	-.04	-.08	.01	.03	-.07	-.02	.05	.02	.12	.08	-.11	--	
MS	.13	.13	-.02	.11	.01	.01	-.07	.05	.14*	.12	.17*	-.10	.04	.11	.07	-.07	.6**	-.14	--

Notes. Entries on main diagonal are Cronbach's alpha. CT = Compulsive Tendencies, Con = Control, IC = Impaired Communication, ID = Inability to Delegate, SW = Self-Worth, WAR = Work Addiction Risk, WLI = Work-Life Imbalance, BMI = Body Mass Index, DB = Diabetes, HD = Heart Disease, HC = High Cholesterol, EX = Exercise, FDB = Family Diabetes, FHD = Family Heart Disease, FHC = Family High Cholesterol, Gen = Gender, MS = Marital Status. *p < .05; ** p < .001.

Table 2

Ranges, Means, and Standard Deviations of All Variables (N = 196)

	Possible Range Of Scores	Range Of Scores Obtained	Mean	*SD*
Compulsive Tendencies	1-4	1-3.89	2.76	.54
Control	1-4	1.14-3.71	2.62	.51
Impaired Communication	1-4	1-3.4	2.09	.52
Inability to Delegate	1-4	1-4	3.24	.80
Self Worth	1-4	1-4	3.01	.61
WART	1-4	1.64-3.76	2.62	.38
Work-Life Imbalance	1-7	1-5.4	3.26	1.02
BMI	--	14-52	26.88	5.87
Type II Diabetes	0-1	0-1	.03	.17
Heart Disease	0-1	0-1	.02	.14
High Cholesterol	0-1	0-1	.11	.31
Family Type II Diabetes	0-1	0-1	.23	.43
Family Heart Disease	0-1	0-1	.29	.46
Family High Cholesterol	0-1	0-1	.29	.45
Exercise	0-8	0-8	2.58	1.78
Gender (1 = male, 2 = female)	1-2	1-2	1.54	.50
Age	1-5	1-5	3.06	1.63
Race (1 = Caucasian, 2 = Other)	1-2	1-2	1.16	.37
Marital Status (1 = single, 2 = married)	1-2	1-2	1.61	.49

Note. SD: Standard Deviation

Hierarchical Regression Analyses

A hierarchical regression analysis was employed in order to determine how much variance in each continuous health variable (e.g., BMI, exercise) was accounted for by the workaholism and work-life imbalance components, above and beyond personal demographics. The personal demographic variables (e.g., gender, age, race, and marital status) were entered in first step of the model in order to serve as demographic controls. For the binary health variables (e.g., self report and family history of Type II diabetes, heart disease, high cholesterol), a binary

logistic regression analysis was used to develop models for predicting health variables from workaholism and work-life balance components, above and beyond the personal demographics. An additional regression analysis was conducted for each health variable to determine the contribution of the total WART score, above and beyond the demographic controls.

The results of the regression analysis with BMI are shown in Table 3. The model including only personal demographics was statistically significant, $F(4, 174) = 4.63$, $p = .001$, $R^2 = .096$, accounting for 10% of the variance in BMI. As seen in Table 3, gender and age both had significant unique effects. Men had significantly higher BMI scores than women, and BMI increased as age increased. The five dimensions of the WART and work-life imbalance were entered in the second step. With the addition of these components to the model, R^2 increased from .096 to .133, explaining an additional 3% of the variance in BMI. The addition of these variables did not significantly increase the fit of the model, $F(6, 168) = 1.18$, $p = .319$. The WART dimensions and work-life imbalance were not significant predictors of BMI.

Table 3

Hierarchical Regression Analysis with BMI as the Criterion

Step	Predictor	β	ΔR^2
1	Gender	-.23*	
	Age	.20*	
	Race	-.05	
	Marital Status	-.10	
			.10
2	Gender	-.22*	
	Age	.26*	
	Race	-.06	
	Marital Status	-.09	
	Compulsive Tendencies	-.14	
	Control	.15	
	Impaired Communication	-.07	
	Inability to Delegate	-.05	
	Self-Worth	.08	
	Work-Life Imbalance	.05	
			.03
		Total R^2	.13

Note. ΔR^2 for the personal demographics is equal to the initial R^2, whereas ΔR^2 for the workaholism variables is the increment in the R^2 after adding it to the personal demographics.
* $p < .05$ ** $p < .001$.

Results of the additional regression analysis used to determine how much variance was accounted for by the total WART score, are shown in Table 4. The same demographic model that was used in the previous analysis was entered as the first step, accounting for 10% of the variance in BMI. The addition of the total WART score to the model in the second step had no effect on the R^2, explaining no more variance in BMI than the previous demographic model, $F(1, 176) = .003$, $p = .958$. The total WART score was not a significant predictor of BMI.

Table 4

Hierarchical Regression Analysis with BMI as the Criterion

Step	Predictor	β	ΔR^2
1	Gender	-.23*	
	Age	.20*	
	Race	-.05	
	Marital Status	-.10	
			.10
2	Gender	-.23*	
	Age	.20*	
	Race	-.05	
	Marital Status	-.10	
	WART	-.00	
			.00
		Total R^2	.10

Note. ΔR^2 for the personal demographics is equal to the initial R^2, whereas ΔR^2 for the workaholism variables is the increment in the R^2 after adding it to the personal demographics.
* $p < .05$ ** $p < .001$.

The same steps of analysis that were employed for BMI were also completed for the exercise variable. The results of these analyses are presented in Tables 5 and 6. For the analysis involving the five dimensions of the WART and work-life imbalance as predictors, the model including only personal demographics fell short of statistical significance, $F(4, 181) = .689$, $p = .601$. There were no significant unique relationships among any of the variables and the model accounted for only 2% of the variance in exercise. The five dimensions of the WART and work-life imbalance were entered in the second step. By adding these variables to the model, the R^2 increased from .015 to .041, although still falling short of statistical significance, $F(6, 175) = .806$, $p = .566$. Adding the predictor variables explained only an additional 2% of the variance in exercise, above and beyond the demographic variables. The dimensions of the WART and work-life imbalance were not significant predictors of exercise.

Table 5

Hierarchical Regression Analysis with Exercise as the Criterion

Step	Predictor	β	ΔR^2
1	Gender	-.03	
	Age	-.09	
	Race	-.02	
	Marital Status	-.05	
			.02
2	Gender	-.04	
	Age	-.10	
	Race	.00	
	Marital Status	-.07	
	Compulsive Tendencies	.07	
	Control	-.01	
	Impaired Communication	.01	
	Inability to Delegate	.12	
	Self-Worth	-.10	
	Work-Life Imbalance	-.07	
			.02
		Total R^2	.04

Note. ΔR^2 for the personal demographics is equal to the initial R^2, whereas ΔR^2 for the workaholism variables is the increment in the R^2 after adding it to the personal demographics.
* $p < .05$ ** $p < .001$.

Results of the regression analysis using the total WART score as a predictor of exercise can be found in Table 6. The first step of the model containing the personal demographic variables explained only 2% of the variance in exercise and fell short of statistical significance, $F(4, 184) = .806$, $p = .523$. The addition of the total WART variable in step two did not explain any additional variance in the exercise variable, above and beyond what was explained in the previous demographic step, $F(1, 183) = .036$, $p = .850$. The total WART score was not a significant predictor of exercise.

Table 6

Hierarchical Regression Analysis with Exercise as the Criterion

Step	Predictor	β	ΔR^2
1	Gender	-.04	
	Age	-.08	
	Race	-.01	
	Marital Status	-.07	
			.02
2	Gender	-.04	
	Age	-.08	
	Race	-.01	
	Marital Status	-.07	
	WART	.01	
			.00
		Total R^2	.02

Note. ΔR^2 for the personal demographics is equal to the initial R^2, whereas ΔR^2 for the workaholism variables is the increment in the R^2 after adding it to the personal demographics.
* $p < .05$ ** $p < .001$.

Binary Logistic Regression Analyses

Type II diabetes. A binary logistic regression analysis was conducted to determine if a model including the workaholism dimensions and work-life imbalance was a significantly better fitting model than the model including only the demographic variables. An intercept-only model correctly classified 96.8% of the cases. Adding the demographic variables in the first step significantly improved the fit of model, $\chi^2(4, N = 187) = 15.41, p = .004$, correct classifications = 96.8%. The five dimensions of the WART and work-life imbalance were added in the second step of the model. The addition of the five WART dimensions and work-life imbalance did not significantly increase the fit of the model, $\chi^2(6, N = 187) = 7.67, p = .263$, correct classifications = 96.8%. The percentage of correct classifications did not change due to the fact that only six participants reported having Type II diabetes. With such a low baserate, the model predicted no diabetes for every subject even when the model included predictors that are related to diabetes.

The dimensions of the WART and work-life imbalance were not significant predictors of Type II diabetes.

An additional binary logistic regression analysis was conducted in order to determine if a model containing the total WART score was a significantly better fit than the demographic model. The intercept-only model correctly classified 96.8% of the cases. Adding the demographic variables to the model significantly improved the fit, $\chi^2(4, N = 190) = 15.61, p = .004$, correct classifications = 96.8%. The addition of the total WART score did not significantly increase the fit of the model, $\chi^2(1, N = 187) = .733, p = .392$, correct classifications = 96.8%. The total WART score was not a significant predictor of Type II diabetes.

Family history of Type II diabetes. An intercept-only model correctly classified 76.5% of the cases. The addition of the demographic variables did not significantly improve the model, $\chi^2(4, N = 187) = 5.72, p = .221$, correct classifications = 76.5%. There was a significant unique effect of gender, with women reporting more family history of Type II diabetes than men, $\chi^2(1, N = 187) = 4.52, p = .034, OR = 2.19$. The five dimensions of the WART along with work-life imbalance were added to the model in the second step. In the second step, the significant effect of gender remained, $\chi^2(1, N = 187) = 5.13, p = .024, OR = 2.39$, and was the only significant unique effect in the model. The addition of the WART dimensions and work-life imbalance did not significantly increase the fit of the model, $\chi^2(6, N = 187) = 2.91, p = .820$, correct classifications = 76.5%. The dimensions of the WART and work-life imbalance were not significant predictors of family history of Type II diabetes.

An additional binary logistic regression analysis was conducted to determine if adding the total WART score in the second step significantly increased the fit of the model. The intercept-only model correctly classified 76.8% of the cases. The addition of the demographic

variables did not significantly increase the fit of the model, $\chi^2(4, N = 190) = 5.62, p = .229$, correct classifications = 76.8%. There was a significant unique effect of gender, with women reporting more family history of Type II diabetes than men, $\chi^2(1, N = 190) = 4.36, p = .037, OR = 2.16$. The total WART score was added in the second step. In the second step, the significant effect of gender remained, $\chi^2(1, N = 190) = 4.37, p = .037, OR = 2.16$, and was the only significant unique effect in the model. Adding the total WART score did not significantly increase the fit of the model, $\chi^2(1, N = 190) = .094, p = .76$, correct classifications = 76.8%. The total WART score was not a significant predictor of family history of Type II diabetes.

Heart disease. The same steps of analysis that were used for the self-report and family history of Type II diabetes were also completed for both the heart disease and high cholesterol variables. For heart disease, the intercept-only model correctly classified 97.9% of the cases. The addition of the demographic variables in the first step significantly increased the fit of the model, $\chi^2(4, N = 187) = 16.02, p = .003$, correct classifications = 97.9%. Adding the five WART dimensions and work-life imbalance did not significantly increase the fit of the model, $\chi^2(6, N = 187) = 6.04, p = .418$, correct classifications = 98.4%. The dimensions of the WART and work-life imbalance were not significant predictors of heart disease.

An additional analysis was conducted to determine whether the addition of the total WART score significantly increased the fit of the model. An intercept-only model correctly classified 97.9% of the cases. Adding the demographic variables in the first step significantly increased the fit of the model, $\chi^2(4, N = 190) = 16.15, p = .003$, correct classifications = 97.9%. The addition of the total WART score did not significantly increase the fit of the model, $\chi^2(1, N = 187) = .046, p = .830$, correct classifications = 97.9%. The total WART score was not a significant predictor of heart disease.

Family history of heart disease. An intercept-only model correctly classified 70.6% of the cases. Adding the demographic variables did not significantly improve the model, $\chi^2(4, N = 187) = 2.891, p = .58$, correct classifications = 70.6%. Adding the five dimensions of the WART and work-life imbalance did not significantly improve the model, $\chi^2(6, N = 187) = 11.360, p = .078$, correct classifications = 73.3%. Only one of the predictors in the final model had a significant unique effect; higher scores on the control dimension predicted a family history of heart disease, $\chi^2(1, N = 187) = 6.93, p = .008, OR = 3.15$, providing partial support for H2. Higher scores on the control dimension predicted a family history of heart disease. The compulsive tendencies, impaired communication, inability to delegate, and self-worth dimensions, along with work-life imbalance, were not significant predictors of family history of heart disease.

An additional analysis was conducted to determine if the addition of the total WART score significantly improved the fit of the model. An intercept-only model correctly classified 71.1% of the cases. Adding the demographic variables in the first step did not significantly increase the fit of the model, $\chi^2(4, N = 190) = 2.95, p = .566$, correct classifications = 71.1%. The total WART score was added in the second step. There was a significant unique effect for the total WART score, $\chi^2(1, N = 190) = 5.27, p = .022, OR = 2.80$, providing partial support for H4. Higher total WART scores predicted a family history of heart disease. The addition of the total WART score significantly increased the fit of the model, $\chi^2(1, N = 190) = 5.51, p = .019$, correct classifications = 71.6%. The total WART score was a significant predictor of family history of heart disease.

High cholesterol. An intercept-only model correctly classified 89.3% of the cases. The demographic variables were added in the first step and the addition of these variables

significantly increased the fit of the model, $\chi^2(4, N = 187) = 13.98, p = .007$, correct classifications = 89.3. A significant unique effect of gender was found, with men reporting more cases of high cholesterol than women, $\chi^2(1, N = 187) = 5.45, p = .02, OR = 3.61$. The WART dimensions and work-life imbalance were added in the second step. Along with the significant unique effect of gender in the second step ($\chi^2(1, N = 187) = 4.53, p = .033, OR = 3.47$), a unique effect of work-life imbalance was discovered. Higher scores of work-life imbalance predicted the presence of high cholesterol, $\chi^2(1, N = 187) = 4.05, p = .044, OR = 1.82$, providing support for H5. Although significant unique effects were found, the five WART dimensions and work-life imbalance did not significantly increase the fit of the model, $\chi^2(6, N = 187) = 9.04, p = .171$, correct classifications = 90.9%. The dimensions of the WART were not significant predictors of high cholesterol.

An additional analysis was used to determine if the addition of the total WART score significantly increased the fit of the model. An intercept-only model correctly classified 89.5% of the cases. Adding the demographic variables in the first step significantly improved the fit of the model, $\chi^2(4, N = 190) = 14.27, p = .006$, correct classifications = 89.5%. A significant unique effect of gender was discovered in both step one ($\chi^2(1, N = 187) = 5.62, p = .018, OR = 3.68$) and step two ($\chi^2(1, N = 187) = 5.62, p = .018, OR = 3.68$), with men reporting more cases of high cholesterol than women. The addition of the total WART score did not significantly improve the fit of the model, $\chi^2(1, N = 190) = .008, p = .931$, correct classifications = 89.5%. The total WART score was not a significant predictor of high cholesterol.

Family history of high cholesterol. An intercept-only model correctly classified 71.7% of the cases. Adding the demographic variables in step one significantly increased the fit of the model, $\chi^2(4, N = 187) = 12.92, p = .012$, correct classifications = 71.1%. Significant unique

effects were discovered for the age and marital status variables in the first step. Younger participants were more likely to report a family history of high cholesterol, $\chi^2(1, N = 187) = 7.91, p = .005, OR = 1.47$, as were married participants, $\chi^2(1, N = 187) = 7.18, p = .007, OR = 3.37$. The addition of the WART dimensions and work-life imbalance in the second step significantly increased the fit of the model, $\chi^2(6, N = 187) = 15.06, p = .02$, correct classifications = 72.7%, but there were no significant unique effects for any of the workaholism variables. There were, however, significant effects for the age, race, and marital status variables. Younger participants ($\chi^2(1, N = 187) = 6.40, p = .011, OR = 1.45$), minority participants ($\chi^2(1, N = 187) = 4.55, p = .033, OR = 2.75$), and married participants ($\chi^2(1, N = 187) = 6.99, p = .008, OR = 3.56$) were more likely to report a family history of high cholesterol. The dimensions of the WART and work-life imbalance did not significantly predict family history of high cholesterol.

An additional analysis was conducted to determine if the total WART score significantly increased the fit of the model. An intercept-only model correctly classified 71.6% of the cases. Adding the demographic variables in the first step significantly increased the fit of the model, $\chi^2(4, N = 190) = 13.81, p = .008$, correct classifications = 71.1%. Significant unique effects were discovered for the age and marital status variables in the first step. Younger participants were more likely to report a family history of high cholesterol, $\chi^2(1, N = 190) = 8.29, p = .004, OR = 1.48$, as were married participants, $\chi^2(1, N = 190) = 7.78, p = .005, OR = 3.52$. The total WART score was added in the second step. As in the model with the WART dimensions and work-life imbalance, younger participants ($\chi^2(1, N = 190) = 7.96, p = .005, OR = 1.49$), minority participants ($\chi^2(1, N = 190) = 3.89, p = .049, OR = 2.48$), and married participants ($\chi^2(1, N = 190) = 7.62, p = .006, OR = 3.56$) were more likely to report a family history of high cholesterol.

The total WART score also had a significant unique effect, $\chi^2(1, N = 190) = 11.21, p = .001, OR = 5.32$, providing partial support for H4. Higher scores on the WART predicted a family history of high cholesterol. Including the total WART score significantly increased the fit of the model, $\chi^2(1, N = 190) = 12.53, p < .001$, correct classifications = 72.6%. The total WART score significantly predicted family history of high cholesterol.

Study Hypotheses: Summary of Findings

H1 was partially supported in that significant positive correlations were found between the compulsive tendencies dimension and both family history of heart disease ($r = .14$) and family history of high cholesterol ($r = .18$). H2 was partially supported by significant positive correlations between the control dimension and both family history of heart disease ($r = .16$) and family history of high cholesterol ($r = .20$). Results from a binary logistic regression also partially supported H2, indicating that the control dimension was a significant predictor of family history of heart disease ($\chi^2(1, N = 187) = 6.93, p = .008, OR = 3.15$). H3 was not supported, with the correlations, hierarchical regression analyses, and the binary logistic regression analyses all indicating that the impaired communication/self-absorption dimension was not a significant predictor of any of the criterion variables. H4 was partially supported by significant correlations between the total WART score and both family history of heart disease ($r = .16$) and family history of high cholesterol ($r = .22$). Binary logistic regressions also provided support for H4, indicating that the total WART score was a significant predictor of family history of heart disease ($\chi^2(1, N = 190) = 5.27, p = .022, OR = 2.80$) and a significant predictor of family history of high cholesterol ($\chi^2(1, N = 190) = 11.21, p = .001, OR = 5.32$). H5 was partially supported by a significant positive correlation between work-life imbalance and high cholesterol ($r = .15$). A

binary logistic regression also provided support for H5, indicating that work-life imbalance was a significant predictor of high cholesterol ($\chi^2(1, N = 187) = 4.05, p = .044, OR = 1.82$).

CHAPTER IV: DISCUSSION

The purpose of the current study was to explore the relationship between workaholism and health variables. Specifically, we wanted to determine if the dimensions of workaholism (i.e., compulsive tendencies, control, and impaired communication), as measured by Robinson's (1996) Work Addiction Risk Test, were related to such health variables as BMI, weekly exercise, and the existence of health issues (e.g., self report and/or family history of Type II diabetes, heart disease, high cholesterol). Very little prior research has attempted to examine the relationship between workaholism and health-related issues (Burke & Cooper, 2008). Previous research has indicated that workaholics tend to work much longer hours than other employees, and these long hours are believed to be associated with health issues such as high blood pressure, obesity, diabetes, coronary heart disease, and poorer overall health (Burke & Cooper, 2008). The proposed reason for this association between long work hours and poorer health was that workaholics do not allow themselves the required time that they need to recover outside of work. The current study went beyond the assumption that hours worked is the only correlate of health issues among workaholics. Given that hours worked cannot be used as the defining characteristic of workaholics, the current study explored the relationship between other valid measures of workaholism and health issues that have often been associated with poor health behaviors. Moreover, the current study used empirical data to actually test the potential relationships between workaholism, using a psychometrically sound measure, and such health variables as obesity, Type II diabetes, and family history of heart disease.

The current study also attempted to expand upon previous research regarding the relationship between work-life imbalance and the neglect of non-work areas of life. Prior studies focused primarily on family issues, failing to consider other areas, such as personal health, that

might also be affected by work-life imbalance (Aziz & Zickar, 2006). Although most work-life imbalance research has focused on family issues, researchers have recently started to consider the influence that such an imbalance may have on the development of adverse health conditions (e.g., Aziz & Zickar, 2006, Seybold & Salomone, 1994) By using the health-related variables as the criteria, the current study attempted to provide evidence for the claim that personal health was also being neglected as a result of work-life imbalance. To date, research in this area has failed to examine the potential relationship between work-life imbalance and such health variables as family history of both heart disease and high cholesterol.

Compulsive Tendencies and Health Variables

As predicted in H1, the compulsive tendencies dimension of the WART was found to be significantly positively correlated with a family history of heart disease and a family history of high cholesterol. Participants scoring higher on the compulsive tendencies dimension were more likely to report a history of family heart disease and a family history of high cholesterol. The results did not support the prediction that scores on the compulsive tendencies subscale would be positively related to BMI, self-report and family history of Type II diabetes, self-report of heart disease, self-report of high cholesterol, and negatively related to amount of weekly exercise. This finding suggests that having an inability to detach and relax after work (Taris et al., 2005) may affect areas of life other than an individual's health. These findings also indicate that there is a much stronger relationship between the compulsive tendencies dimension and a family history of health issues, as opposed to self-reported health issues. It is likely that because these health issues are generally developed later in life, the majority of the participants have not yet developed them.

Control and Health Variables

The same pattern of results was found for H2. The control dimension of the WART was found to be significantly positively correlated with a family history of heart disease and a family history of high cholesterol. Participants scoring higher on the control dimension were more likely to report a history of family heart disease and a family history of high cholesterol. The results did not provide support for the prediction that scores on the control subscale would be positively related to BMI, self-report and family history of Type II diabetes, self-report of heart disease, self-report of high cholesterol, and negatively related to amount of weekly exercise. This finding suggests that having a high need for control and a desire for things to go as planned (Taris et al., 2005) does not always interfere with one's maintenance of their own health. It is possible, however, that health effects associated with high control scores have not yet been developed. The short-term costs that have been associated with workaholism are irreversible and can eventually lead to long-term adverse health conditions (Burke & Cooper, 2008). Continued behaviors associated with high control scores may lead to the eventual development of these health issues over time.

Impaired Communication and Health Variables

Results of all analyses failed to provide support for H3. It was predicted that the impaired communication subscale would be positively related to BMI, self-report and family history of Type II diabetes, heart disease, and high cholesterol, and negatively related to amount of weekly exercise. Scores on the impaired communication subscale were not found to be significantly related to any of the health variables. These findings suggest that although individuals might be unwilling to put time into their relationships instead of work (Taris et al., 2005), they do not seem to be neglecting their health along with their personal relationships. Those with high scores on the impaired communication subscale do not appear to be currently

engaging in behaviors that are resulting in health-related consequences. It is possible, however, that individuals scoring high on the impaired communication subscale could experience negative health-related consequences if these behaviors continue to occur over time.

WART and Health Variables

As predicted in H4, the total WART score was found to be significantly positively correlated with a family history of both heart disease and high cholesterol. Participants who scored higher on the WART were more likely to report a family history of heart disease and a family history of high cholesterol. Binary logistic regressions also supported the relationship between the WART and these two health variables. The results failed to provide support for the prediction that scores on the WART would be positively related to BMI, self-report and family history of Type II diabetes, self-report of heart disease, self-report of high cholesterol, and negatively related to amount of weekly exercise. This finding suggests that a workaholic's engagement with his or her work does not necessarily influence their health behaviors and the development of all of the proposed health issues. These findings indicate that there is a much stronger relationship between the score on the WART and a family history of health issues, as opposed to self-reported health issues. It is likely that because of the age of the sample, participants have not yet developed any of these health issues. It is also possible that the workaholic's engagement with his or her work does actually influence health behaviors, but that the unhealthy behaviors have not been occurring long enough to have developed any indications of the presence of these adverse health conditions.

Work-Life Imbalance and Health Variables

As predicted in H5, a significant positive correlation was discovered between work-life imbalance and self-report of high cholesterol. Participants who reported a higher score of work-

life imbalance were more likely to have high cholesterol. The relationship between these two variables was also supported by a binary logistic regression analysis, suggesting that work-life imbalance is a significant predictor of high cholesterol. The results failed to provide support for the prediction that work-life imbalance would be positively related to BMI, self-report and family history of Type II diabetes, self-report and family history of heart disease, family history of high cholesterol and negatively related to amount of weekly exercise. This finding suggests that although physical health may be an area of non-work life that is neglected in the presence of work-life imbalance, it does not appear to be an area of neglect for some individuals with high work-life imbalance. However, it is possible that participants are in the early stages of developing health issues without being aware of their condition. It is also very likely that the continued neglect of physical health over time will lead to the eventual development of these health issues.

Demographics and Health Variables

Several significant relationships were identified among the demographic variables and the health criterion variables. Gender was found to be significantly negatively correlated to BMI, self-reported heart disease and high cholesterol, and positively correlated with family history of Type II diabetes. That is, women had lower BMI measurements, were less likely to self-report heart disease and high cholesterol, and were more likely to have a family history of Type II diabetes. The relationships between gender and BMI, self-reported high cholesterol, and family history of diabetes were also found with the regression analyses for each of these criterion variables.

There were two significant positive correlations identified between marital status and both self-reported Type II diabetes and self-reported high cholesterol. That is, married

participants were more likely to report having these two health issues. Because married participants were significantly older than single participants, this relationship provides support for the claim that these adverse health conditions develop later in life.

Perhaps the most interesting of the relationships among the demographic variables and the health variables are those involving age. Age was found to be significantly positively correlated with BMI, exercise, self-reported Type II diabetes, heart disease, and high cholesterol, and significantly negatively correlated with family history of high cholesterol. That is, older participants were more likely to have higher BMI measurements and more weekly exercise, as well as more self-reported instances of Type II diabetes, heart disease, and high cholesterol, and fewer reports of family history of high cholesterol. The relationships with age were also supported by regression analyses for the BMI and family history of high cholesterol variables. The significant correlations between age and all self-reported health variables provides additional support for the claim that participants are more likely to experience health-related issues later in life.

Study Limitations and Future Research

Despite the significant findings, there are some limitations that should be addressed in regards to the current study. The first limitation to acknowledge when interpreting the results of this study is that the data were gathered as a result of convenience. The majority of the participants were professional contacts of the primary investigator. This resulted in a less diverse sample than desired, with 83.2% of respondents identifying themselves as Caucasian. With such a homogenous sample, it is difficult to generalize the results of the current study to the general working population.

Another limitation of the current study is the fact that all of the questionnaires were administered online. This required all participants to have access to the Internet in order to participate in the study. By administering the questionnaire online, individuals without access to the Internet were automatically removed from the potential sample. Future researchers may consider administering paper-and-pencil measures in order to include participants without Internet access. Administration of the measures face-to-face may also help with the response rate. Some of the participants completed only the first of the three measures when the measures were administered online. By requiring the participants to meet face-to-face, it is likely that the response rate will increase and that there will be a greater likelihood of all measures being completed.

Additionally, the use of self-report measures may have affected the results of the current study. Although self-report measures are convenient, inexpensive, and easy to administer, the use of self-report measures often leads to response distortion among participants. This is particularly important in regards to the health variables that were used in this study. Distortion may have been intentional, but it is also possible that participants were not aware of their exact health-related measurements (e.g., weight, height), or perhaps they were unaware of the fact that they might have developed a specific health issue (e.g., Type II diabetes, heart disease, high cholesterol). Future researchers should consider obtaining data, particularly the health-related data, using methods other than self-report. They may consider measuring participant height, weight, and BMI, rather than having height and weight self-reported and calculating participant BMI based on these approximations. Similarly, future researchers might also consider actually testing for the presence of health conditions such as Type II diabetes, heart disease, and high cholesterol.

Lastly, it appears that age may be an important factor and limitation of the current study. The mean age range for participants in the study was between 31-35 years of age. Because many of the criterion variables are health issues that tend to develop later in life, it is possible that the participants in the current study were not old enough to be presently experiencing such health problems. This limitation may explain why family history of heart disease and high cholesterol were the most significant outcome variables, as opposed to the self-reported heart disease and high cholesterol of the participants. If found to be the case, this idea would be consistent with findings from previous research suggesting that workaholic behaviors are often passed on to future generations (Robinson, 1998). Future research should explore the effect that age has on the relationship between workaholism and work-life imbalance predictor variables with the health-related criterion variables.

Practical Implications

Several findings from the current study suggest a relationship between both the dimensions of the WART and work-life imbalance with health variables. This is valuable information that should be taken into consideration during the selection process and also when promoting employee behavior. Recently, there has still been some debate as to whether workaholic behaviors should be rewarded or discouraged within the organization (Taris et al., 2005). Although workaholic behaviors may occasionally lead to positive consequences for the organization in terms of productivity, the current study demonstrates that there are also highly detrimental costs that can be associated with such behaviors (e.g., the development of adverse health conditions). There are several negative organizational consequences that could also occur as a result of the promotion of workaholic behaviors. Employers may find themselves faced with increased health care costs that are associated with health issues developed as a result of these

behaviors. They might also experience costs in terms of a loss in productivity due absenteeism. Employees suffering from health-related issues are more likely to experience high absenteeism, as well as increased short-term disability (Rodbard et al., 2009). The results of the current study can be used to inform employers of the influence that workaholic behaviors can have on the health of their employees. With this information, employers will not only be able to select the right type of employees by avoiding those who exhibit workaholic tendencies, but also help to promote a healthy workforce and ultimately minimize the health-related costs of their current employees.

Findings from the current study also have practical implications in terms of promoting work-life balance among employees. Results indicated that work-life imbalance is also associated with health issues that may raise health costs for employers, such as high cholesterol. With this information, employers can be informed of the relationship and develop the necessary programs to help encourage work-life balance within their organization. By encouraging work-life balance, employers can avoid any unnecessary costs that might be associated with this state. These costs include those associated with such organizational issues as absenteeism, as well as those related to increased health care costs as a result of health-related issues. Essentially, by educating and encouraging such a balance among employees, employers can take the preventative measures necessary to keep the costs associated with these particular health issues at a minimum.

Conclusions

The goal of the current study was to explore the relationship between workaholism, work-life imbalance, and health variables. Several significant results were discovered, suggesting that a relationship does indeed exist between these specific predictor and criterion variables.

Research on this topic is in the early stages of development, and the study of workaholism would benefit greatly from future research using specific biological factors that are established indicators of metabolic diseases (e.g., lipid profiles, blood pressure) to confirm these findings. Future studies should focus on the family history of health problems and perhaps examine the relationship between age and the development of these particular health issues. If future studies provide support for the current findings, employers will be able to greatly benefit from these discoveries by encouraging healthy behaviors among their employees and ultimately lowering the healthcare costs associated with these types of employee health issues.

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APPENDIX A: IRB MATERIALS

East Carolina University

1907-2007
CENTENNIAL

January 4, 2010

Jenna M. Hartinger, Psychology Graduate Student
Department of Psychology
East Carolina University

RE: **Exempt Certification** for UMCIRB #: **09-0972**
Funding Source: unfunded

Title of Research: (OCB) Workaholism and Work-life Imbalance: the Potential Influence on Health Variables

Dear Ms. Hartinger,

On 12.30.09, the University & Medical Center Institutional Review Board (UMCIRB) determined that your research meets ECU requirements and federal exemption criterion #2 which includes research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects and any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation..

It is your responsibility to ensure that this research is conducted in the manner reported in your Internal Processing Form and Protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB Office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification Request at least 30 days before the end of the five year period.

Sincerely,

Chairperson, University & Medical Center Institutional Review Board

Attachments
Informed Consent

pc: Shahnaz Aziz

1907-2007
CENTENNIAL
East Carolina University

UNIVERSITY HEALTH SYSTEMS
of Eastern Carolina

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: Workaholism and Work-life Imbalance: The Potential Influence on Health Variables

Principal Investigator: Jenna M. Hartinger, Industrial/Organizational Psychology Graduate Student
Institution/Department or Division: East Carolina University
Address:2809 H Holly Glen Rd. Greenville, NC 27834
Telephone #: 919.946.2794

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 people who are willing to take part in research.

The person who is in charge of this research is called the Principal Investigator. The Principal Investigator may have other research staff members who will perform some of the procedures.

You may have questions that this form does not answer. If you do, feel free to ask the person explaining the study, as you go along. You may have questions later and you should ask those questions, as you think of them. There is no time limit for asking questions about this research.

You do not have to take part in this research. Take your time and think about the information that is provided. If you want, have a friend or family member go over this form with you before you decide. It is up to you. If you choose to be in the study, then you should sign the form when you are comfortable that you understand the information provided. If you do not want to take part in the study, you should not sign this form. That decision is yours and it is okay to decide not to volunteer.

Why is this research being done?
The purpose of this research is to identify relationships between various work related behaviors. The decision to take part in this research is yours to make. By doing this research, we hope to discover potential connections between work related behaviors and various areas of non-work life.

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. If you volunteer to take part in this research, you will be one of about 200 people to do so.

Are there reasons I should not take part in this research?
Some of the items asked on the survey may cause discomfort for some respondents, due to their personal nature. Please note that you may withdraw from the study at any time or refuse to answer any question that you deem too personal or otherwise inappropriate.

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FROM 12-30-09
TO no expiration

What other choices do I have if I do not take part in this research?
You have the choice of not taking part 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 20 minutes, on only one occasion.

What will I be asked to do?
You are being asked to do the following: Complete an online survey regarding work related behaviors. Please do not include your name at any point in completion of the survey. You may end your participation at any point, or refuse to answer and of the questions that you deem inappropriate. Completion of the online survey equates participant consent. Please be honest when indicating responses to the questionnaire.

What possible harms or discomforts might I experience if I take part in the research?
There are always risks (the chance of harm) when taking part in research. It has been determined that the risks associated with this research are no more than what you would experience in a normal life. However, some people react to things differently so it is important for you to tell us as quickly as possible if you experience any negative feelings, or feel sick.

Are there any reasons you might take me out of the research?
During the study, information about this research may become available that would be important to you. This includes information that, once learned, might cause you to change your mind about wanting to be in the study. We will tell you as soon as we can.

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. This research might help us learn more about the relationship between work related behaviors and various areas of non-work life. There may be no personal benefit from your participation but 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.

Who will know that I took part in this research and learn personal information about me?
To do this research, ECU and the people and organizations listed below may know that you took part in this research and may see information about you that is normally kept private. With your permission, these people may use your private information to do this research:

- Any agency of the federal, state, or local government that regulates human research. This includes the Department of Health and Human Services (DHHS), the North Carolina Department of Health, and the Office for Human Research Protections.
- The University & Medical Center Institutional Review Board (UMCIRB) and its staff, who have responsibility for overseeing your welfare during this research, and other ECU staff who oversee this research.

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 be associated with your responses. All responses to this survey will remain completely anonymous and confidential, as you will never be asked to identify yourself. The final report for this study will include only aggregated data; no individual data will be singled out for separate analysis. The responses that you provide will be encoded and analyzed by the research team at East Carolina University. Only members of the East Carolina University Research team will be permitted to view the responses to

the survey. The information collected from this study will be stored in a private database and will only be kept throughout the duration of analysis. All analyses will be conducted prior to May 2010.

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.

What if I get sick or hurt while I am in this research?
This study does not involve any risk greater than what you experience in everyday life. Therefore, we do not expect you to become sick or hurt as a result of being part of this research. However, people respond differently to things and sometimes accidents do happen. Therefore, if you need emergency care call 911 for help. If possible, take a copy of this consent form with you when you go.

Call the principal investigator as soon as you can. He/she needs to know that you are hurt or ill. Call Jenna M. Hartinger at 919.946.2794 or Dr. Shahnaz Aziz at 252.328.1379.

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, Jenna M. Hartinger at 919.946.2794 (days) or Dr. Shahnaz Aziz at 252.328.1379 (days).

If you have questions about your rights as someone taking part in research, you may call the UMCIRB Office 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 UMCIRB Office, 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 sign 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 understand that I can stop taking part in this study at any time.
- By signing this informed consent form, I am not giving up any of my rights.
- I have been given a copy of this consent document, and it is mine to keep.

Participant's Name (PRINT)	Signature	Date

Person Obtaining Informed Consent: I have conducted the initial informed consent process. I have orally reviewed the contents of the consent document with the person who has signed above, and answered all of the person's questions about the research.

Person Obtaining Consent (PRINT)	Signature	Date
Jenna Hartinger	Jenna Hartinger	12/15/09
Principal Investigator (PRINT)	Signature	Date

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APPENDIX B: MEASURES

Workaholism

Please answer the following questions concerning how you feel about various aspects of your work by choosing one of the five 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

Work-Life Imbalance

The following questions pertain to your life outside of work. We are asking these questions because we want to link what happens to you on the job with your life outside of work. Please indicate the degree to which you have felt a particular way during the last <u>three</u> months.

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

1.	The demands of my work interfere with my personal life; such as, family, friendships, religion, hobbies, etc…….....	1	2	3	4	5	6	7
2.	The amount of time my job takes up makes it difficult to fulfill personal responsibilities…….....	1	2	3	4	5	6	7
3.	Things I want to do in my personal life do not get done because of the demands my job puts on me…….....	1	2	3	4	5	6	7
4.	My job produces strain that makes it difficult to fulfill personal duties…….....	1	2	3	4	5	6	7
5.	Due to work-related duties, I have to make changes to my plans for leisurely activities…….....	1	2	3	4	5	6	7
6.	The demands of my family, spouse/partner, and/or friends interfere with work-related activities…….....	1	2	3	4	5	6	7
7.	I have to put off doing things at work because of demands on my time outside of work…….....	1	2	3	4	5	6	7
8.	Things I want to do at work don't get done because of the demands of my personal life…….....	1	2	3	4	5	6	7
9.	My personal life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime…….....	1	2	3	4	5	6	7
10.	Strain related to my personal life interferes with my ability to perform job-related duties…….....	1	2	3	4	5	6	7

Demographics

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

Age: ☐ 25 years and under ☐ 26-30 ☐ 31-35 ☐ 36-40 ☐ Over 40

Gender: ☐ Male ☐ Female

Ethnicity: ☐ Caucasian American ☐ African American ☐ Native American

☐ Latin American ☐ Asian/Pacific Islander ☐ Other

Have you ever been married? ☐ Yes ☐ No

If yes, what is your relationship status? ☐ Living with someone ☐ Currently married

☐ Separated ☐ Divorced ☐ Widowed

Do you have children? ☐ Yes ☐ No

Hours worked per week (including at home): ☐ 35 or less ☐ 36-40

☐ 41-45 ☐ 46-50 ☐ 51-55 ☐ 56-60 ☐ More than 60

How long have you been with your current organization? ☐ Less than 1 year

☐ 1-2 years ☐ 3-4 years ☐ 5-9 years ☐ 10-14 years ☐ 15 years or more

How long have you held your current position? ☐ Less than 1 year

☐ 1-2 years ☐ 3-4 years ☐ 5-9 years ☐ 10-14 years ☐ 15 years or more

Career Status: ☐ Professor ☐ Non management

☐ Lower management ☐ Middle management ☐ Senior management

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 and over

What is your height in feet and inches? _____

What is your body weight in pounds? _____

On average, how many calories do you consume per day? _____ ☐ Don't Know

Do you have any of the following? ☐ Type II Diabetes ☐ Heart Disease ☐ High Cholesterol

Do you have a family history of any of the following? ☐ Type II Diabetes
☐ Heart Disease ☐ High Cholesterol

On average, how many times do you exercise per week? ☐ 0 ☐ 1 ☐ 2 ☐ 3
☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 or more