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Fit to Lead? Supervisors' Health Behaviors, Well-Being, and Leadership Behaviors

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Fit to Lead?

Supervisors' Health Behaviors, Well-Being, and Leadership Behaviors

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
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Dedication

It is with much appreciation, pride and honor that I dedicate my doctoral dissertation to my family, friends, and mentors who have provided me the guidance, support and motivation to successfully completed a doctorate and pursue my dreams, large and small. In particular, I am indebted to my parents who instilled in me the importance of dedication, responsibility, and values through their example and unwavering support of my goals. Thank you to my “support crew” of good friends, family and mentors for being a part of my life and enabling my success!

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Table of Contents

List of Tables	iii
List of Figures	iv
Abstract	v
Introduction.....	1
Workplace Health	2
Leadership and Health	3
Health Behaviors as Antecedents of Well-Being.....	9
Well-Being as an Antecedent of Leadership Behaviors	13
Active leadership	15
Passive leadership	17
Current Study	21
Method	24
Participants.....	24
Measures	26
Measures: Supervisor Reports	28
Demographics	28
Health behaviors	28
Sleep.....	29
Alcohol and tobacco use	29
Physical activity	29
Diet.....	30
Well-Being.....	33
Measures: Subordinate Reports	34
Demographics	34
Leader relationships	34
Leader behaviors.....	35
Results.....	37
Results from Construct Correlations.....	38
Results from Regression Analyses.....	43
Discussion.....	56
Summary of Results	67
Conclusion	69

List of References	73
Appendices.....	88
Appendix A: IRB Approval Form	89
Appendix B: Supervisor Survey Items	91
Appendix C: Subordinate Survey Items	96

List of Tables

Table 1. Participant demographics.....	27
Table 2. Zero-order correlations amongst focal variables	42
Table 3. Hierarchical regression for relationships between physical activity, sleep, and well-being	46
Table 4. Hierarchical regression for relationships between all health behaviors and well-being	47
Table 5. Hierarchical regression for relationships between physical activity, sleep, and well-being (regressed separately)	48
Table 6. Hierarchical regression for relationships between diet, alcohol, tobacco, and well-being (regressed separately)	49
Table 7. Hierarchical regressions for relationship-oriented active leadership behaviors and relationship quality.....	53
Table 8. Hierarchical regressions for task-oriented active leadership behaviors and relationship quality	54
Table 9. Hierarchical regressions for passive leadership behaviors and relationship quality	55

List of Figures

Figure 1. Hypothesized model of health behaviors, leadership behaviors, and relationship quality	23
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Abstract

This study proposes a model to test the relationships amongst supervisors' health behaviors and leadership behaviors. Specifically, 107 supervisor-subordinate pairs responded to a cross-sectional survey. Supervisors provided self-reports of their health behaviors (physical activity, diet, sleep, alcohol/tobacco use) and perceived well-being. Subordinates rated the supervisors' perceived leadership styles and the quality of relationships they share at work. Results were mixed with support largely being found for previously established relationships between (a) physical activity, sleep duration and quality, and well-being, and (b) leadership behaviors and supervisor-subordinate relationship quality. The primary thesis of this study—that leaders with improved health behaviors and well-being will engage in more active leadership behaviors and fewer passive behaviors—was not supported. This study served as a first-step towards a more sophisticated understanding of how a healthy lifestyle impacts leaders' at-work behaviors and performance.

Introduction

A healthy workforce is a top-priority for many organizations, given the direct and indirect costs of unhealthy employees (see Macik-Frey, Quick, & Nelson, 2007, for review). The World Health Organization (WHO) defines health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 1946, pg. 100). This definition has remained pervasive as the foundation of most contemporary definitions of health. According to the WHO, one’s lifestyle is indicative of health as opposed to merely avoiding ill-health. Walsh (2011), in a recent review of psychological literature, proposed that “health professionals have significantly underestimated the importance of lifestyle for mental health” (pg. 579). With this, he goes on to present evidence for the impact a healthy lifestyle has on cognitive performance, psychosocial well-being, and the prevention and treatment of psychopathologies. Walsh’s perspective underscores the importance of valuing health as a lifestyle, and not merely a component of one’s life, which promotes physical and psychological health. A healthy lifestyle promotes the ability to properly function, adapt, and engage in day-to-day demands at work and home. The purpose of this study is to examine the connections between the health and well-being of leaders and the leadership behaviors and relationships they engage in at work.

The central thesis of this study is simple but wide-ranging in its implications: The health of an organization hinges on the health of its employees. A supervisor who fulfills an organizational leadership role is an employee tasked with exerting influence over others. As such, a healthy leader makes for a healthier organization and, importantly, is

also an individual in a position to evoke change, promote a positive organizational culture and influence the everyday experience of other employees. The unique and intense demands, stressors and flexibility required of leaders in organizations suggest that their health is particularly critical for effectively engaging and performing their job duties and roles (Quick, et al., 2000). Given this, understanding the indicators of leaders' health and the key role leaders' health holds for organizational success, particularly at the employee-level, is the topic of the discussion that follows.

Workplace Health

The Surgeon General of the U.S. announced in her "vision for a healthy and fit nation 2010" that obesity is at epidemic proportions and has severe implications for work performance, health care costs, well-being, mood instability, and self-esteem (U.S. Department of Health and Human Services [HHS], 2010a). The Surgeon General's report notes that chronic health concerns can be prevented through nutrition, physical exercise, and workplace interventions. In a report addressing disease prevention through physical activity, HHS (2002) reported that in 1993, 14% of all U.S. deaths were due to diet and activity patterns. Additionally, a sedentary lifestyle was associated with 23% of deaths due to chronic diseases. Focusing on the workplace, the same report states that physical activity programs and engagement in regular physical activity could lead to reductions in health care costs between 2 and 55%, short-term sick leave could be reduced by up to 32%, and work productivity could increase dramatically, by up to 52%. The objectives of *Health People 2020*, a U.S. government-funded national research program that establishes benchmarks and monitors population progress, has identified a number of health behaviors as primary objectives for the next decade, including improving nutrition, engaging in physical activity, sleep health, and smoking cessation programs for

workplaces (HHS, 2010b). The latter general health behaviors, engaged in by supervisors, will be the focus of this study along with leadership behaviors at work.

The importance of workplace health extends beyond daily patterns of behavior, such as physical activity and nutrition, to include implications for strain outcomes. For example, a review conducted by Skakon, Nielsen, Borg, and Guzman (2010) notes that the European Agency for Safety and Health at Work reports that work-related stress is responsible for between 50 and 60% of lost working days. Macik-Frey, Quick, and Nelson (2007) state that the cost of workers' poor health to U.S. businesses is about 7% of overall labor costs. Additionally, Ricci, Chee, Lorandean, and Berger (2007) note that the cost due to productive time loss amongst fatigued workers was about \$46 billion USD. In short, health is important for employees, organizations and societies at large wanting to ensure their own sustainability.

Leadership and Health

A source of considerable organizational influence lies with its leadership. Leaders are not only essential for the proper guidance and functioning of a company but also set the culture and values amongst their employees. Leaders within organizations have a significant impact on the daily psychosocial experiences, stressors, and environmental factors related to employee health (Barling & Carson, 2010; Kuoppala, Lamminpää, Liira, & Vainio, 2008). Since organizational leaders are themselves employees, understanding how health behaviors relate to the leadership capabilities of supervisors in formal leadership roles has significant implications for both the leader him/herself and for those they influence.

Research indicates that positive leadership behaviors are related to, for example, improvements in followers' prosocial behavior and work attitudes (Podsakoff,

MacKenzie, & Bommer, 1996), well-being (Kuoppala, Lamminpää, Liira, & Vainio, 2008; Nielsen & Munir, 2009), cardiovascular health (Nyberg, et al., 2009), safety behaviors (Mullen & Kelloway, 2009), effective leader-follower relations (Sparr & Sonentag, 2008), and attenuated job strain and depression (Pflanz, & Ogle, 2006). Conversely, negative and less engaged leadership behaviors, such as abusive leadership and laissez-faire leadership, increase follower rates of burnout, reduce job satisfaction and commitment, and elicit perceptions of unfairness and distress (Chen, Beck, & Amos, 2005; Hetland, Sandal, & Johnsen, 2007; Tepper, 2000). Negative leadership behaviors are also related to increased incidences of workplace bullying, alcohol consumption, and incivility (Bamberger & Bacharach, 2006; Hauge, Skogstad, & Einarsen, 2007). As evidenced by the aforementioned studies, the relationships strain symptoms (e.g., burnout, illness, workplace injuries) share with key organizational outcomes, such as absenteeism, turnover, safety behaviors, job satisfaction, and deviant behaviors (Boyd, Lewin, & Sager, 2009; Hansez & Chmiel, 2010; Vinokur, Pierce, Lewandowski-Romps, Hobfoll, & Galea, 2011) have implications for an organization's bottom-line. To summarize these relationships: leadership behaviors lead to employee health outcomes which, in turn, relate to organizational outcomes, such as job performance and satisfaction. Amongst research on leadership and workplace health, few studies have examined antecedents to the sequence of these aforementioned relationships (for review, see Skakon et al., 2010). In the context of occupational health, one important antecedent to consider is the leader's health itself.

Why should we care about the health of our leaders? For one, an unhealthy leader may not be a leader much longer. Life expectancy, life-debilitating diseases (e.g. Alzheimer's, cardiovascular disease, dementia), and cognitive aging are directly linked

with one's daily health behaviors, such as physical activity, smoking, and diet (Britton, Shipley, Singh-Manoux, & Marmot, 2008; Deary & Gow, 2010; Hamer & Mishra, 2010; Jenkins, et al., 2010; Lee & Paffenbarger, 2000). Climbing the corporate ladder takes time, which means that attaining impactful leadership roles occurs at a time when the effects of aging and improper maintenance of health earlier in life begin to manifest. In the UK, for example, it is projected that the number of employees over 65 will increase 33% between 2005 and 2020 (Dewe & Kompier, 2010). Imagine the potential for disorganization and chaos in organizations where leaders are too ill to come to work each day, or for that matter, no longer have sufficient cognitive and physical resources to devote to work-related problems. Such leaders would not be leaders at all since their ability to serve as critical decision-makers and formative organizational figures would go unfulfilled. Thus, an unhealthy leader is a risk for an organization desiring sustainability, stability and predictability for its future management.

A second reason why organizations ought to care about the health of their leaders is because appraisals of leader effectiveness and involvement are empirically related to perceptions of leaders' physical fitness and their physical, psychological and social resiliency (Lovelace, Manz, & Alves, 2007; McDowell-Larsen, Kearney, & Campbell, 2002). Thus, leaders perceived as healthy and with the energy to attend to a strenuous work day, can serve as an exemplar for and symbol of the values and "health" of an organization. Additional evidence suggests leaders who appear more "evolutionarily fit" tend to achieve greater success and higher incomes (van Vugt, Hogan, & Kaiser, 2008). An evolutionary perspective helps to explain why, for men, height and weight (so long as the leader is not obese) are correlated positively with salary and are theorized to be indicative of status and power (Judge & Cable, 2004, 2011). Thus, being and appearing

healthy are important for others perceiving a leader as capable and engaged.

A third reason, and an enabling factor for the previous two reasons, is that maintaining mental and physical health allots greater resources benefitting individuals' adaptability and resiliency (Hobfoll, 2001; Neck & Cooper, 2000). For example, engagement in physical activity is related to increases in resources related to resiliency, such as improved cognitive ability, psychosocial stress responses, self-esteem and self-efficacy in intervention and experimental studies (Alderman, et al., 2007; Crews & Landers, 1987; Ryan, 2008; White, Kendrick, & Yardley, 2009). Physical activity, achieving work-life balance and general health maintenance outside of work are also related to improved well-being, energy, mood, resiliency, and fewer strain and burnout symptoms (Crews & Landers; Ensel & Lin, 2004; Kobasa, Maddi, & Puccetti, 1982; Puetz, 2006; Sonnentag, Kuttler, & Fritz, 2010; Toker & Biron, 2012).

For all of these reasons, it is important that we garner an empirically-based understanding of the relationships between leaders' health behaviors and behaviors at work. Though the assumed importance of a leader's health as an indicator of their engagement and ability as a leader is frequently espoused by consultants providing services promoting "leader health training", high-profile leaders in interviews and books, and the media, few published empirical studies have sought to understand the true nature of the relationship between leaders' health and leadership (Quick, et al., 2000). Despite the notable strides made in our understanding of employee experiences related to leadership, the leader's role in the leadership process has sometimes been neglected (Kelloway & Barling, 2010). To address these limitations, this study investigates the relationships between supervisor self-reports of their general health behaviors and well-being with subordinate-reported perceptions of their supervisors' leadership behaviors

and relationship quality at work.

It is important to note that although “leader” and “supervisor” are not necessary equivalent terms, they will be used interchangeably here. The use of “supervisors” as a proxy for “leaders” is frequent within organizational psychology research since managers and supervisors serve a directive, motivational, and central function for their immediate and more distal employees (Yukl, 2006). Yukl makes a useful distinction between a leader characterized by their specialized role (e.g., CEO, manager) and one defined by the influence they garner. The current discussion focuses on the former type of leadership, with the caveat that a supervisor is not necessarily a “leader” but will engage in leadership behaviors, to varying degrees. In light of this important distinction, we may now turn to the utility of the current study.

The contributions of this study are three-fold. First and fundamentally, it addresses health behaviors and their outcomes, which is a primary concern for all. A leader prioritizing his or her health is not a selfish endeavor given the number of individuals who rely on the leader to direct and guide their everyday work experiences. Furthermore, the leadership within organizations is central to establishing the company’s culture (e.g., Berson, Oreg, & Dvir, 2008), climate (e.g., safety climate; Zohar, 2002), and policies (e.g., Harrison & Coppola, 2007). Leaders who prioritize health will likely reflect their values, discipline and personal priorities in the choices they make at work and for their workforce. Thus, a leader’s prioritizing health can have contagious effects within the workplace, such as improved affect and reduced accidents (Sy, Côté, & Saavedra, 2005; Zohar, 2002).

Second, the topic of this study is timely and relevant. Calls by recent reviews of leadership and organizational health and wellbeing issues (Barling & Carson, 2010;

Kelloway & Barling, 2010; Lovelace et al., 2007; Skakon et al., 2010) along with government agencies (HHS, 2002, 2010a, 2010b) explicitly prioritize the promotion of quality leadership and employee health, making this study a valuable addition. Kelloway and Barling (2010) note that many of the relationships between workplace stressors and strain outcomes are established, but efficient interventions for these relationships are few. To employ a successful health intervention, we must first have a solid understanding of the basic relationships between nonwork health behaviors and workplace behaviors. This suggests a need for research examining antecedents to sources of workplace stressors, such as lackluster leadership. Similarly, Skakon and colleagues note that a further understanding of the mechanisms for how well-being is promoted and reduced is needed. Though the purpose of this study is not an intervention, its results may serve as guiding evidence for future investigations addressing the components of efficient and effective leadership interventions.

Third, this study serves as a first-step in identifying a means of leadership development and intervention. If meaningful relationships are present between the health behaviors of leaders and the utility of their leadership behaviors at work, then promoting a healthier lifestyle for those in leadership roles may be an efficient means of improving leaders' role demands, employee experiences and outcomes. Kelloway and Barling (2010) note that not all leadership interventions are equal. An intervention focusing on the health of leaders provides targeted leaders the added motivation and benefit of improving their own welfare in addition to the relationship quality with and well-being of those working for them. When leaders can see a personal return, in addition to the expected return for their company, adherence and motivation to participate in leadership development may increase. Thus, this study may provide a new avenue for leadership

development by providing an empirical basis for mechanisms which promote productive leadership and health behaviors.

In light of the significance of the topics this study addresses, this study aims to test the relationships modeled in Figure 1. Much research exists across of a variety of disciplines, including public health, epidemiology, kinesiology, and medicine, which when accumulated provides a foundation for expecting the health behaviors of leaders to relate to their well-being and subsequent leadership behaviors and higher quality relationships with their employees.

Health Behaviors as Antecedents of Well-Being

Research supports the notion that health behaviors (e.g., physical activity intervention; Rotem, Epstein, & Ehrenfeld, 2009), and feelings of well-being lend to more resilient reactions to stress, such as the use of active rather than passive coping behaviors (Lazarus & Folkman, 1984; Ito & Brotheridge, 2003; Unal-Karagüven, 2009; Xanthopoulou, et al., 2009). Thus, maximizing health and well-being has implications for how we might expect an individual to interact with and react to their environment when they have greater stamina, energy and physiological and psychological mechanisms for adapting (Neck & Cooper, 2000; Quick, et al., 2000). As such, heightened health and well-being should lend to active orientations of behavior, as opposed to passive orientations. The importance of leaders being actively engaged with their environment is critical once it is understood that a leader's effectiveness rests not only with awareness of situational and interpersonal needs, but also with the ability to quickly adapt to ever-changing environments. This ability to actively invest oneself in one's leadership role enables improved outcomes for the leader, employees and organization. For example, Harris, Harris, and Harvey (2008) report reductions in job strain and turnover intentions

for subordinates with leaders displaying goal-directive behaviors, while high quality supervisor-subordinate relationships were related to less subordinate-reported emotional exhaustion (Perry, Witt, Penney, & Atwater, 2010). In the latter case, specific leadership behaviors were necessary to prompt specific employee outcomes. Understanding how leaders influence employee outcomes is a critical and frequently studied topic. However, to promote improvements in employee conditions, we must know what factors enable leaders to adapt and engage with their environment more effectively—namely, leaders' health behaviors and well-being.

The health behaviors identified in Figure 1 are not only theoretically substantiated as antecedents to well-being (Quick, et al., 2000), but also have a growing amount of empirical support. The health behaviors that will be specifically discussed include physical activity, diet, sleep patterns, and tobacco and alcohol consumption. Physical activity shares direct and robust relationships with dispositional variables, such as self-esteem (e.g., Ryan, 2008) and affect (e.g., Parfitt, Rose, & Markland, 2000), and with reports of increased well-being and reduced burnout and depression (Edwards, 2006; Lee & Paffenbarger, 2000; Puetz, 2006; Toker & Biron, 2012). Additionally, physical activity is related to reductions in general appraisals of workplace stress (Taylor, 2000) and a variety of stress-related outcomes, such as improved physical health, reduced absenteeism and heightened job satisfaction (Darley & Parfitt, 1996; Darr & Johns, 2008). Likewise, perceived and actual fitness of supervisors and leaders is empirically linked with more efficacious and engaged leader behaviors (McDowell-Larsen, Kearney, & Campbell, 2001). Physical activity serves as a valuable generative resource such that it improves physical fitness, resiliency, autoimmune responsivity and can enhance mood states (Lovelace, Manz, & Alves, 2007). Thus, physical activity should serve as a

valuable activity that bolsters an individual's well-being and ability to actively interact with his/her environment.

An individual's daily dietary intake of food, sleep patterns and the use of alcohol and tobacco also contribute to feelings of well-being and ability. For instance, inadequate nutrition can result in cognitive deficits and psychomotor performance deficits (Hawkins, Vichick, Silsby, Kruzich, & Butler, 1985). Gómez-Pinilla (2008) found evidence for linking the mental health of entire nations to diet based upon a comprehensive review of the literature. Proper nutrition is shown to enhance cognitive functioning, reduce incidents of chronic diseases, such as Alzheimer's and Parkinson's, and reduce the severity of some mental health disorders (Walsh, 2011). Sleep deprivation and disturbances are associated with reductions in the cognitive resources necessary to maintain flexibility in the presence of challenging tasks and new situations. When individual's fail to receive enough sleep, they experience reduced memory capabilities, cognitive performance (Rouch, Wild, Ansiau, & Marquie, 2005), and impaired abilities to deal with novel tasks and situations (Gosselin, De Koninck, & Campbell, 2005). Disturbances in a regular sleep schedule, resulting from shift-work for example, are also associated with increased strain symptoms, workplace accidents, role conflict, and result in reductions in work performance and cardiovascular health (Giovanni, 1996). Specifically, Armon and colleagues (2008) reported a longitudinal study that found sleep insomnia predicted job burnout 18-months later for workers. The relationships between inadequate diet and sleep and performance deficits (e.g. cognitive impairment) highlight the importance of sufficient sleep and a nutritious diet for the general maintenance of one's well-being and ability to function effectively at work.

Tobacco and alcohol use are additional lifestyle factors that contribute to one's

overall health. Britton, Shipley, Singh-Manoux, and Marmot (2008) conducted a longitudinal cohort study which looked at lifestyle health behaviors' contributing to risk factors later in life. Of the factors studied, abstaining from smoking (tobacco) and moderate-to-no alcohol consumption were related to better quality of life 17-years later. In addition, alcohol and smoking, two behaviors which empirically are shown to frequently co-occur (Piasecki, et al., 2011), can become dependencies and addictions that may conflict with the daily work schedule of a job. Notably, Piasecki and colleagues (2011) report that there is a higher risk for health deficits for individuals that both smoke and consume alcohol, compared to only using one or the other. When experiencing addictive withdrawal behaviors, such as from the nicotine in cigarettes, the ability to adapt and attend to unanticipated events, perform at a high level of cognitive functioning and interact predictably with others is reduced (e.g., Taylor & Katomeri, 2007).

Withdrawal from tobacco products and excessive alcohol consumption, when addicted, are also related to increased reports of depression, negative affect, and cravings (Cinciripini, et al., 2003; Hefner, Mingione, Blom, & Anthenelli, 2011; Weinberger, George, & McKee, 2011). This suggests engaging in tobacco use and excessive alcohol consumption will result in reduced well-being, performance, and attentional deficits as increased cognitive effort must be directed towards cravings and affect modulation throughout the day. Subjective and objective measures of performance and organizational success support this notion. Judge and Cable (2010) found that male workers who smoked and/or consumed alcohol had significantly lower salaries over a 25-year period than men who had not. Similarly, McDowell-Larsen, Kearney, and Campbell (2002) report that bosses who smoke were also rated lower on a measure of effective leadership. Thus, tobacco use (e.g. smoking) and excessive alcohol use will result in a decrease in

ability and adaptability for supervisors.

In sum, increased bouts of physical activity and adherence to a nutritious diet results in improved cognitive functioning, stress reactions, responsiveness, and adaptability whereas sleep deprivation and engaging in tobacco and alcohol use lend to attenuated cognitive abilities and reductions in work performance. Theoretical and empirical evidence supports the importance of health behaviors as an antecedent to well-being. Engaging in a consistent pattern of healthy behaviors (a lifestyle of physical activity, a healthy diet, adequate sleep, and avoiding tobacco and excessive alcohol consumption) should in turn enable supervisors to experience heightened well-being in the form of enhanced general health and vitality.

Hypothesis 1: Supervisors' health behaviors will share a positive relationship with supervisor-reported well-being. Specifically (a) physical activity, (b) diet, (c) sleep, and (d) abstaining from tobacco and excessive alcohol consumption are positively related to reports of well-being (increased vitality and general health).

Well-Being as an Antecedent of Leadership Behaviors

Leaders must be actively engaged in interactions with subordinates and situations to assess the types of behaviors that are most relevant for achieving the group's goals and to adapt to changing and unforeseeable events. A need for active engagement suggests that increased well-being, in the forms of general health and vitality (i.e. energy), will enable a leader the capacity to conduct themselves appropriately and adapt more effectively to situational needs with their leadership behaviors. Though substantiated by theoretical work (Quick, et al., 2000), few studies have reported relationships between the well-being of a leader and the leader's engagement and effectiveness at performing his/her role. Meta-analytic results of the latter studies, reported by Hoffman and colleagues (2011), find a .29 correlation between leaders' energy (i.e. vitality) and their

overall effectiveness. In line with these findings, Neck and Cooper suggest that it is likely that when leaders possess greater physical endurance and stamina from a healthy lifestyle and subsequent well-being, they are more actively engaged because they are adaptive and better-prepared for strain-evoking events. When leaders exhibit no leadership or fail to engage and adapt, they are guilty of passive-avoidance behaviors. A passive reaction due to a lack of vitality and health will undermine leaders' engagement and resiliency, to the detriment of those following. This highlights an important distinction between scenarios in which the leader engages with a situation and/or other individuals and adapts readily to change compared to leadership behaviors which are characterized by withdrawal, neglect, and indifference towards a changing environment. The former leadership behaviors are indicative of an active-orientation whereas the latter is defined by a passive-orientation.

Leadership behaviors are frequently categorized according to an active or passive orientation (Kelloway & Barling, 2010). For example, Barber's (1977) typology of presidential character, within scholarship on political science, popularized this distinction. His conceptualization defines the distinction according to how much energy a leader invests and predicts that "active" participation will result in better outcomes compared to "passive" behaviors. Thus, well-being as defined by both general health and vitality (energy) provides a reservoir of resources from which the leader can invest or not invest in their leadership role. More recently, Avolio, Bass, and Jung (1999) provide empirical evidence for a three-factor structure of leadership behaviors in which transformational and transactional leadership describes active behaviors and passive-avoidant leadership characterizes passive behaviors. For instance, supervisors who prefer to let their subordinates work through problems on their own or avoid interacting with subordinates all-together are displaying passive leadership behaviors. Alternatively,

supervisors who provide task-specific feedback and seek to create a cohesive workgroup through quality relationships are displaying active leadership behaviors.

This study will examine four common “styles” of active leadership behaviors and two of passive leadership behaviors. Leadership styles, of which there are many, are clusters of leadership behaviors or approaches to leadership that individuals display to varying degrees given situational and dispositional factors. These styles are broadly grouped according to a passive versus active distinction. This distinction is founded on theoretical (Barber, 1977; Bass, 1998) considerations and empirical outcomes distinguishing the effectiveness of passive versus active leadership behaviors (e.g., Judge, Piccolo, & Ilies, 2004; Lyons & Schneider, 2009). *Active leadership behaviors* are defined by leaders’ engagement and interpersonal interaction, with their subordinates, that is either/both formative and productive for the successful attainment of goals, motivation and extra-role and in-role task performance. Leaders who evade interpersonal relationships and interactions with their subordinates, who are submissive, and who fail to provide guidance are exhibiting *passive leadership behaviors*.

Active Leadership. Active leadership behaviors include consideration, initiating-structure, transformational, and transactional leadership. Together, these four leadership types constitute some of the most commonly studied and well-validated groupings of leadership behaviors (Chemers, 2000; Judge, Piccolo, & Ilies, 2004). The Ohio State Leadership Study, conducted in the 1950’s, identified two primary factors describing leadership behaviors (Stogdill, 1950; 1963). The first factor, *consideration leadership* is the extent to which a leader demonstrates his or her concern and appreciation for followers’ needs and preferences while providing emotional and instrumental support. The second factor, *initiating structure* describes leaders who are directive, in that they

define leader and group roles, activities and tasks along with communicating clear performance goals and standards (Stogdill; Judge, Piccolo, & Ilies).

The latter two types of leadership behaviors have their origins in the theory and research of Bass and his colleagues (Avolio, et al. 1999; Bass, 1998; Bass & Avolio, 1990). The factor structure, based on the creation and robust validation of the Multi-Factor Leadership Questionnaire (MLQ), along with further theoretical development defines leadership according to a 6-factor model with 3 primary factors: transformational (4 facets: idealized influence, intellectual stimulation, inspirational motivation, and individualized consideration), transactional, and passive-avoidant behaviors (2 facets: laissez-faire and management by exception-passive). Bass's (1998) Full Range of Leadership Model provides further theoretical articulation and empirical support for uniqueness of each of the three leadership styles.

Transactional leadership is described by behaviors that promote an exchange relationship in which a leader provides task and goal-specific guidance and communicates clear reward expectancies for good performance (Bass, 1998).

Transformational leadership, broadly defined, is characterized by leadership behaviors which seek to actively invoke change. More specifically, transformational leaders (a) motivate and articulate a vision for future success by attending to followers' welfare and concerns (individualized consideration), (b) provide challenging and stimulating learning and growth opportunities (intellectual stimulation), (c) articulate future goals/visions and appeal to others' emotions (inspirational motivation), and (d) garner respect as role-models (idealized influence). Global measures of transformational leadership tend to heavily weigh the leader's charismatic behaviors associated with the dimension of inspirational motivation. As a result, some consider the terms "transformational" and

“charismatic” leadership relatively interchangeable, with the distinction being that charismatic leadership also falls under the auspices of the dimension of inspirational motivation (Jex & Britt, 2008).

Passive Leadership. Passive leadership behaviors include management by exception (passive) and laissez-faire leadership. Both of these leadership styles were formally identified empirically by the factor structure of the MLQ, and have been theoretically developed by Bass (1998) to describe ineffective or “hands-off” leadership behaviors. Passive leadership is most frequently associated with reduced subordinate job performance (Chemers, 2000). These leadership behaviors are also conceptualized as a lack of leadership. Leaders exhibiting *passive management by exception* will only engage in leadership behaviors when they are alerted to deviations in performance and/or goal attainment. In situations in which performance is adequate, the aforementioned leader will remain an idle figure. Similarly, *laissez-faire* leadership behaviors are defined by a lack of leadership presence, such that leaders provide subordinates with little guidance, expect subordinates and group members to devise problem-solving strategies independently and allow subordinates complete autonomy and freedom.

In order to understand active versus passive leadership behaviors, we must have a sense of what contributes to each behavioral orientation. Examining the frequency of leaders’ health behaviors and related well-being, in the form of vitality and general health, can provide insight into how leaders interact with their environment. The question arises however, why is this distinction important in the larger context of an organization? Relationships are well-established between active leadership behaviors and higher performance and well-being outcomes for subordinates. Notably, active leadership behaviors (e.g. transformational, consideration, initiating structure and transactional) are

positively related to subordinate job performance, job satisfaction, prosocial organizational behaviors, and trust in one's leader (Podsakoff, Mackenzie, Moorman, & Fetter, 1990). Active leadership is also associated with increased well-being, reduced absences due to illness (Kuoppala, Lamminpää, Liira, & Vainio, 2008), fewer job strains and lower turnover intentions (Harris, Harris, & Harvey, 2008) for subordinates. Conversely, passive leadership behaviors (laissez-faire and passive management by exception) are associated with increased rates of burnout, reduced job satisfaction, and in some cases, increased rates of distress (Hetland, Sandal, & Johnsen, 2007; Stogstad, et al, 2007).

Leader competency and effectiveness have been linked with active leadership behaviors and are negatively related to passive leadership behaviors (DeRue, Nahrgang, Wellman & Humphrey, 2011). Within the present discussion, active leadership behaviors are notably more effective, compared to passive. Although active behaviors are preferable, they also require more energy and overall physical and psychological stamina to enact since they require a cognitive and physical investment on the part of the leader. Conversely, passive leadership behaviors (which can be thought of as a lack of leadership) require little effort and time on behalf of the leader.

Leaders engaging in healthy behaviors and benefitting from heightened well-being (vitality and health) will be more able to engage actively in everyday routine interactions and respond resiliently and adaptively in stressful situations. Active behaviors are theoretically more likely amongst leaders with greater endurance and stamina because stressful situations should be notably less stressful for a leader psychologically and physically prepared to cope with stress. This stands in juxtaposition to a leader who is less psychological and physically able and thus does not have the

cardiovascular and cognitive resiliency to physiologically react as efficiently and easily as a healthier individual (Neck & Cooper, 2000). Put another way, the effort required for a leader to actively engage in a situation will be incrementally greater if they do not already have the health and energy reserves to attend to unexpected demands. For instance, running 2-miles is a mere warm-up for a frequent marathon-runner but is a struggle for someone who engages in little to no physical activity. Thus, a leader lower in well-being will have to both acquire needed resources to endure the demands of people and situations *and* still address the relevant situation; whereas a leader who already possesses the stamina and endurance to deal with the unexpected (such as running an extra mile after the first two), will only have to do the latter. A leader with health and vitality has a head-start on the leader lacking an adequate level of well-being and will be able to utilize the extra energy they possess to more effectively react and behave. Given the increased effort necessary for leaders with lower levels of well-being, a passive leadership approach becomes understandable for leaders who lack vitality and health since it theoretically requires less energy and effort. In brief, a leader with increased well-being is likely to have greater endurance and resilience in the face of stress and the unexpected, as compared to a leader who has lower well-being. Thus, leaders with greater levels of well-being are more likely, and capable, of engaging in active behaviors.

Given the theoretical rationale for the linkages between well-being and an individual's ability to adapt and actively invest energy in their environment, and the empirical relationships between well-being (and related constructs such as burnout and energy) and active versus passive leadership behaviors, it is proposed that an increase in well-being (vitality and general health) will be positively related to active leadership behaviors and negatively related to passive leadership behaviors. Additionally, it is also

proposed that well-being will serve a mediating role between the frequency of leaders' health behaviors and active and passive leadership behaviors.

Hypothesis 2: Well-being (vitality and general health) will be (a) positively related to active leadership behaviors and (b) negatively related to passive leadership behaviors.

Hypothesis 3: Well-being (vitality and general health) will mediate the relationships between (a) physical activity, (b) diet, (c) sleep, and (d) abstaining from tobacco and excessive alcohol consumption and active leadership behaviors.

Hypothesis 4: Well-being (vitality and general health) will mediate the relationships between (a) physical activity, (b) diet, (c) sleep, and (d) abstaining from tobacco and excessive alcohol consumption and passive leadership behaviors.

Given that active leadership behaviors are generally associated with positive organizational outcomes and passive leadership behaviors are broadly related to less desirable outcomes, it is hypothesized that subordinates will rate their supervisor's interpersonal performance as better in the presence of active leadership behaviors. Effective leadership performance, specifically oriented towards interpersonal workplace interactions, will be assessed with subordinates' confidence in their supervisor, loyalty, trust, and the quality of the supervisor-subordinate relationship (leader-member exchange). Together these latter three variables will be termed "relationship quality" as they indicate the quality of the interpersonal workplace interactions between the supervisor and the subordinate and are an indicator of whether the subordinate perceives the supervisor as satisfying the role as a trusted and confident leader. These metrics all operate at an interpersonal-level highlighting the underling responsibility of supervisors to engage in workplace relationships with their subordinates.

Hypothesis 5a: Active leadership behaviors will be positively correlated with subordinate ratings of their supervisors' relationship quality.

Hypothesis 5b: Passive leadership behaviors will be negatively correlated with subordinate-ratings of their supervisors' relationship quality.

As previously proposed, a supervisor's well-being should relate to a higher occurrence of active leadership behaviors and fewer passive leadership behaviors. This suggests that the supervisor's active and passive leadership behaviors will mediate the relationships between the supervisor's well-being and the subordinate's rating of the supervisor's interpersonal relationship quality at work.

Hypothesis 6: The relationship between supervisor-reported well-being and subordinate-rated supervisor relationship quality will be mediated by the supervisor's active and passive leadership behaviors.

In summary, it is hypothesized that leaders who engage in physical activity, have a more nutritious diet, get sufficient sleep, abstain from tobacco and consume no-to-moderate amounts of alcohol will perform more active leader behaviors owing to enhanced well-being, which is conceptualized as vitality and general health. These active leadership behaviors will in turn translate into subordinates reporting higher relationship quality with their supervisors. Conversely, reduced health behaviors and well-being will relate to higher rates of passive leadership behaviors translating into reduced supervisor-subordinate relationship quality.

Current Study

To test these relationships, supervisor-subordinate matched pair survey data were collected from employees across a diverse set of industries. Zero-order correlations were performed to establish basic relationships across the focal constructs. Follow-up hierarchical regressions were conducted to further test the hypothesized relationships (see Figure 1 for model). Demographic and personality variables were included as controls in

each regression to parcel out potential covarying relationships. These variables were chosen based upon previously established empirical and theoretical relationships and evidence from the zero-order correlations. Specifically, demographic variables included supervisors' age, gender, highest level of education, and tenure in their current job's position. Self-esteem and positive affect were included as dispositional variables which were controlled for in the hierarchical regression analyses. Notably, both self-esteem and positive affect are empirically and theoretically related to well-being (e.g., Alacorn, Eschleman, & Bowling, 2009; Toker & Biron, 2012), health behaviors such as physical activity (e.g., Yueng & Helmsley, 1996), and leadership (e.g., Li, Arvey, & Song, 2011; Rajah, Song, & Arvey, 2011). The regressions reported only include hypothesized relationships amongst focal variables receiving support; variables that shared non-significant correlations were not included in the regressions.

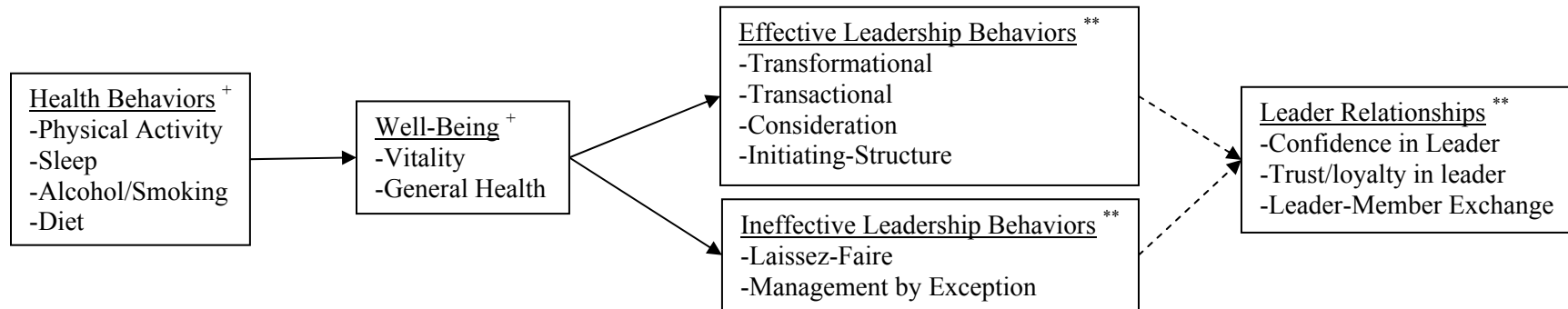


Figure 1. Hypothesized model of health behaviors, leadership behaviors, and relationship quality

+ Supervisor self-report

** Subordinate-rating of supervisor

Method

Participants

Supervisor-subordinate matched dyads were recruited from companies throughout the U.S. using a snow-balling recruitment technique initiated with university and business contacts. Both supervisors and subordinates were contacted, via a secure e-mail account, to respond to a web-based survey. The contacted employee (either subordinate or supervisor) was then asked to forward the web-based survey URL onto his/her respective counterpart (supervisor or subordinate, respectively) to enable supervisor-subordinate matched pair data. In all, 186 employees were contacted via e-mail to complete a supervisor or subordinate survey and forward the appropriate survey on to their subordinate or supervisor, respectively. Of these, 136 employees responded as either a supervisor or subordinate. For the responses to be a useable pair, both the supervisor and subordinate needed to complete their respective survey. In total, 107 usable supervisor-subordinate pairs were acquired, resulting in an overall response rate of 57.53%.

To be eligible to participate, supervisors worked at least 30 hours a week and managed at least one employee as part of their formal job duties. Subordinates worked a minimum of 20 hours per week and had worked under the supervision of the supervisor for at least two months. A minimum of a two-month relationship tenure between the supervisor and subordinate ensured the subordinate had adequate time to observe and interact with the supervisor for the sake of rating the supervisor's workplace leadership behaviors.

All participants were assured that their responses would be kept confidential (e.g., supervisors will not have access to subordinates' responses, and vice versa) and used solely for research purposes, reducing concerns related to social-desirability and

dishonesty. To further ensure confidentiality, each participant was provided, via e-mail, a unique and confidential identification number to enter at the start and end of the survey. The use of unique identification numbers allowed the matching of responses from supervisors and subordinates.

In exchange for participating in this study, participants recruited ($N = 71$) via university courses received extra credit points. Of the usable 107 supervisor-subordinate pairs, 35.45% ($N = 36$) were recruited from university courses. All other participants were traditional employees at a variety of companies through the U.S. As an incentive, supervisor-subordinate pairs with both surveys complete were eligible to participate, upon participants' e-mailed request, in a raffle for two \$25 gift certificates. In addition, all requesting participants received a summary of the study's aggregated results.

Participants' demographic information is presented in Table 1.

Subordinates, with useable data ($N = 107$; refer to Table 1 for summary), were mostly female (69.2%), on average 32.2 years old ($SD = 11.4$ years), were predominantly Caucasian (70.1%; African American: 9.3%; Hispanic: 12.1%, Asian: 4.7%; 2.8% preferred to not respond), were employed full-time (68.2%), and worked an average of 37.2 hours per week ($SD = 9.8$). Subordinates worked in a variety of settings, indicating their industries as: Educational/Academic Industry (18.7%), a professional industry (26.2%), a retail/service industry (33.6%), a manufacturing industry (4.7%), a technical industry (10.3%), or in government (4.7%). Overall, participants reported a high education level, with 31.8% holding a graduate degree, 26.2% having completed a bachelors degree as their highest level of education, 27.1% an associate's degree, and 13.1% reported high school as their last degree earned. Subordinates reported being employed with their current organization on average 4 years and 7 months ($M = 55.4$

months, $SD = 68.3$), in their current position for an average of 3 years and 1 month ($M = 37.4$ months, $SD = 43.7$), and under their current supervisor for 3 years and 2 months ($M = 38.0$ months, $SD = 51.4$).

Supervisors were half male and half female (47.7% female; 50.5% male), on average 40.3 years old ($SD = 12.3$ years), Caucasian (79.4%; African American: 3.7%; Hispanic: 8.4%; Asian: 5.6%, preferred not to report: 0.9%), and highly educated (highest degree earned: High School: 9.3%, Associate's: 9.3%, Bachelor's: 42.1%, Graduate: 37.4%). All but one supervisor reported working full-time. Supervisors reported working an average of 48.2 hours each week ($SD = 8.2$), and their industry as: Retail/Service (35.5%), Professional (25.2%), Educational/Academic (15.9%), Manufacturing (6.5%), Technical (11.2%), or Government (3.7%). Supervisors had worked within their current organization an average of 11 years and 3 months ($M = 111.5$ months, $SD = 93.8$) and in their current position 5 years and 2 months ($M = 61.6$ months, $SD = 73.7$).

Measures

All survey scale responses were made on a 5-point Likert scale (response anchors vary according to each scales' purpose) unless otherwise noted. Survey items are included in Appendix B and C.

Table 1. Participant demographics

	Subordinate	Supervisor
Gender (Male/Female)	69.2% / 30.8%	47.7% / 50.5%
Age	32.2 years (<i>SD</i> = 11.4)	40.3 years (<i>SD</i> = 12.3)
Ethnicity/Race	70.1% Caucasian 9.3% African American 12.1% Hispanic 4.7% Asian	79.4% Caucasian 3.7% African American 8.4% Hispanic 5.6% Asian
Industry	18.7% Educational/Academic 26.2% Professional 33.6% Retail/Service 4.7% Manufacturing 10.3% Technical 4.7% Government	15.9% Educational/Academic 25.2% Professional 35.5% Retail/Service 6.5% Manufacturing 11.2% Technical 3.7% Government
Education (highest attained)	13.1% High School 27.1% Associate's 26.2% Bachelor's 31.8% Graduate	9.3% High School 9.3% Associate's 42.1% Bachelor's 37.4% Graduate
Employee Full-/Part-Time	68.2% / 31.8%	99.1% / 0.9%
Hours worked per week	37.2 hrs (<i>SD</i> = 9.8 hrs)	48.2 hrs (<i>SD</i> = 8.2 hrs)
Tenure with Organization	4 yrs, 7 months (<i>SD</i> = 68.3 months)	11 yrs, 3 months (<i>SD</i> = 93.8 months)
Tenure in Current Position	3 yrs, 1 month (<i>SD</i> = 43.7 months)	5 yrs, 2 months (<i>SD</i> = 73.7 months)
Tenure with Supervisor	3 yrs, 2 months (<i>SD</i> = 51.4 months)	

Measures: Supervisor Reports

Demographics. Supervisors reported their gender, age, ethnicity, height and weight (to calculate daily caloric and food intake needs), tenure with their current organization, tenure working in their current position, occupation, highest level of education, and hours worked each week. Additionally, measures of supervisors' self-esteem and affect were responded as both may serve as covariates of the hypothesized relationships amongst the focal variables. Self-esteem was measured using Rosenberg's (1965) 10-item measure ($\alpha = .83$). Positive affectivity was measured using Watson and Clark's (1994) PANAS 10-item subscale ($\alpha = .92$).

Health behaviors. Supervisors responded to a series of questions regarding the frequency of engaging in the focal "health behaviors" during the previous week. Supervisors were asked to initially indicate whether their behaviors with regards to eating, sleeping, alcohol consumption, tobacco usage, and physical activity were representative of their typical weekly behaviors. The majority of supervisors (88.8%) reported the previous week as typical and referenced it when responding to the survey items. When it was the case that the previous week was not typical (e.g. unable to attend work due to illness, on vacation), supervisors were instructed to think of and report their behaviors for the most recent "typical" week for the purposes of the survey.

A week-long timeframe is typical amongst studies examining individuals' health behaviors. Given the specificity of the health behaviors in contrast to the more general appraisals required by the subordinates of the supervisors' leadership behaviors, the supervisors were asked to describe a "typical" week from the previous weeks. Though the week immediately prior is preferred for the sake of self-report behavioral recall, it is important the information reported describes typical behavior rather than anomalous

experiences. Survey items responded to by supervisors addressed their self-reported sleep duration and quality, use of alcohol and tobacco, physical activity and diet (food intake).

Sleep. Sleep duration was assessed with 2 items, modified from the Nurses' Health Study's 2008 long, standard format questionnaire (questions #45 and 46; Channing Laboratory, 2008). The Nurses' Health Study is a large-scale, National Institute of Health (NIH) funded prospective study that has collected survey responses from participants (120,000+) every 2 years since 1976. The first question regarding sleep assessed how many hours of sleep the participant received each night, on average over the previous week. The second question assessed the average quality of sleep they received (1 = "poor"; 5 = "excellent").

Alcohol and tobacco use. Alcohol and tobacco use were assessed using two study developed embedded response questions assessing use over the previous 7 day period. In questions addressing each alcohol and tobacco, participants were asked if they consumed or used, respectively, the substance. If they answer "yes" to either question, participants were asked to report the frequency of their use (e.g., number of drinks, numbers of times tobacco was used) for each day over the previous week.

Physical activity. Physical Activity was measured using an adapted version of the Godin Leisure Time Exercise Questionnaire (GLTEQ; Godin & Shephard, 1985). The GLTEQ is comprised of a self-report survey that assesses the frequency and intensity of participants' engagement in physical activity over the previous 7 days. The originally validated questionnaire asks participants how many times in the past week they performed strenuous exercise, moderate exercise, and mild exercise for at least 15 minutes. For the purposes of this study, participants were asked many minutes in the past 7 days they participated in strenuous, moderate, and light physical activity. The GLTEQ

uses a weighted scoring method in which weekly LTPA is equivalent to the sum of the weighted values of strenuous (x 9), moderate (x 6), and light (x 3) activity levels. Based upon the responses, a total scale score of physical activity can be computed for each participant along with subscores for mild, moderate and strenuous physical activity levels.

Diet. A food frequency questionnaire (FFQ) was used to measure each participant's typical *daily diet*. Participants reported, to the best of their recall and knowledge, what foods they consumed over a typical 24-hour period. The 12-item FFQ is comprised of items created for this study which asked participants to indicate the type and portion size ("none", "small", "medium", "large") of foods consumed. In a review of FFQ designs, validation, and utilization, Cade and colleagues (2004) recommend allowing respondents to estimate their own portion size, rather than using average portion sizes, by defining portions according to small, medium and large response options. Additionally, the review advises against the use of open-ended questions, unless an interviewer is administering the FFQ, due to the potential for data being lost from ambiguous responses. The measure's items are based upon a validated FFQ checklist developed by Kristal, et al. (1990), an interview-based food intake survey reported by Thompson, et al. (2005; interview questions from the Multifactor Screener: National Health Interview Survey 2000), and an interview-based screening survey of fat, fruit and vegetable intake developed by Block, Gillespie, Rosenbaum, and Jenson (2000).

The U.S. Department of Agriculture (2005) Center for Nutrition Policy and Promotion's "USDA Food Guidance System" provides a break-down of food groups which were adopted as a framework to categorize the FFQ items for analyses. It should be noted that the food items are categorized slightly differently on the FFQ as it is

presented to participants. The categories and order of the survey items on the measure are designed to reduce cognitive load and enable more efficient responding. Categorizing the FFQ food items for analysis based upon the framework of the USDA's recommendations for a healthy diet enables estimations of the nutritional breakdown and adequacy of participants' daily food intake. The USDA's current categorization of food items is termed "MyPlate". MyPlate groups foods into five primary food groups and an additional "empty calorie" label designated for foods lacking caloric and nutritional value. Foods vary in the extent to which they contain empty calories, which are calories from solid fats and/or added sugars. The MyPlate categories are: fruits, vegetables, grains, proteins (e.g., meats, beans, nuts), dairy (milk products will be categorized by low-/no-fat products and regular-/high-fat products), and "other" empty calories allowances (e.g. sweets, fried foods). The measure created for this study offered slight modifications to the MyPlate food groups to encourage honest and accurate reporting (e.g. issues related to desirability of reporting unhealthy food choices). As such, the FFQ includes subdimensions for "fruit & vegetables," "dairy," "proteins," "grains," and "other" (this was renamed from "empty calories" to reduce social undesirability issues related to reporting unhealthy food consumption).

In order to determine the nutritional adequacy of supervisors' self-reported dietary intake, height and weight biometric data were used to determine each person's daily needed caloric intake. Supervisors self-reported height, weight, gender and age as demographic information. Biometric conversions to determine each participant's ideal daily caloric intake were made using the Mayo Clinic's Mayo Foundation for Medical Education and Research electronic calorie calculator. The Mayo Clinic is a world-renowned medical center based in the Midwestern U.S. which provides medical research,

healthcare, and health-related educational resources. Height, weight, gender and age are prominent factors leading to differential caloric needs amongst individuals, with individuals who are taller, heavier, younger and/or male requiring more daily calories. For instance, a 25-year old, 6' 3" man requires about 2500 calories to maintain homeostasis whereas a man of the same description that is 60-years old only requires 2250 calories. Similarly, a female who is 25 years old, 5' 5", and weighs 130 pounds would require an estimated 1700 calories a day. Based upon caloric intake calculations, the average ideal caloric intake for supervisors was 2085.29 calories ($SD = 341.78$).

Utilizing the reported dietary needs of individuals based upon their needed daily caloric intake, supervisors' reported food intake was assessed for adequacy. First, each person's daily food intake needs, based upon individual caloric allowances and associated recommended food intake patterns from the USDA's MyPyramid published guidelines (2005) and MyPlate health initiative's online serving size recommendations, were converted into servings per day for each of the five food categories and "other" discretionary allowance category. On the FFQ for this study, supervisors reported both the frequency of food consumption and the average portion size consumed for each food. Next for calculating daily diet, food intake patterns for each person were computed taking into account the food intake frequency and the average portion sizes reported. For the sake of computing food intake, rough estimates of consumption were computed by using the reported portion size and the frequency of the foods consumed. Portion sizes were coded as 0 = NA (did not eat), 1 = "just a taste", 2 = "small", 3 = "average", 4 = "large", and 5 = "extra large". Portion size was quantified by multiplying the frequency of the foods consumed by portion size (e.g. if participant reported consuming 4 fruits of average size, that would equal $4 * 3 = 12$). As a third step, difference scores for each food

category were created between the actual reported food consumption and ideal consumption. The ideal consumption for each person is defined by guidelines set forth by the USDA's MyPlate health initiative, which takes into account the daily caloric and nutritional needs of individuals. Thus, ideal food consumption and actual food consumption were quantified as ideal caloric intake for each food category and actual caloric intake. The absolute value of each difference score was then computed for the sake of creating a summated rating scale for dietary inadequacy. An overall summated score of "dietary inadequacy" was calculated by summing the values from each category. Thus, lower values indicate better nutrition whereas a higher value indicates a greater discrepancy between a person's nutritional needs and what they actually consume (e.g. a less healthy diet). Dietary inadequacy is defined for this measure as failing to consume the appropriate quantity of foods. According to this definition, over and under consumption are treated similarly since by definition, both indicate malnutrition. Understanding the differential impact of over- and under-consumption of food for nutrition is beyond the auspices of this study. To facilitate analysis and interpretation, the latter values were then reverse-scored so a higher value indicates healthier eating.

Well-being. A supervisor's well-being was measured with self-reported levels of vitality and general health. *Vitality and general health* were measured using a four item and a five item subscale, respectively, from the SF-36 Health Survey (Ware & Gandek, 1998). The SF-36 Health Survey, a 36-item health status survey, is a widely-used assessment addressing concepts closely linked to disease and treatment. The items address health from a variety of operational definitions representing an efficient and comprehensive tool to measure self-reported health status (Ware & Gandek). The full-length SF-36 health status survey is comprised of 36 items, grouped into eight first-order

factors (termed subscales) and three second-order factor (Keller, Ware, Gandek, et al., 1998a). The scale's factor structure and validity were empirically established in the Medical Outcomes Study (MOS). This study utilized the second-order factor of general well-being, which is comprised of two subscales (two first order-factors) for vitality and general health. For the vitality subdimension ($\alpha = .82$; e.g. "Did you feel worn out?"), responses were made using a 5-point scale (1 = "None of the time", 3 = "A good bit of the time", 5 = "All of the time"). The general health subdimension ($\alpha = .82$; e.g. "I am as healthy as anybody I know.") used a 5-point scale with four of the items responded to using a true/false Likert scale (1 = "Definitely False", 5 = "Definitely True") and an item assessing overall health using response options ranging from excellent to poor (1 = "Poor", 3 = "Good", 5 = "Excellent"). The response anchor options, though differing amongst the items within the SF-36 measure, have empirical support for their adequacy and relevance across a variety of contexts, cultures and nationalities (Keller, Ware, Gandek, et al., 1998b). The measures for general health and vitality were combined to form a second-order factor measuring overall *well-being* ($\alpha = .86$).

Measures: Subordinate Reports

All subordinate-reported survey scale responses will be made on a 5-point Likert scale (1 = "strongly disagree", 5 = "strongly agree), unless otherwise noted.

Demographics. Subordinates reported their gender, age, ethnicity, level of education, tenure with their current organization, tenure working under the supervision of the supervisor completing a survey, tenure working in their current position, industry, and hours worked each week.

Leader relationships. Subordinates rated the quality of the interpersonal relationships they share with their supervisor using measures of trust and confidence in

their leadership and relational quality (leader-member exchange; LMX). Specifically subordinate-supervisor leader relationships were measured using Podsakoff et al. (1990) 6-item measure for Trust in/Loyalty to Leader scale ($\alpha = .82$). Subordinates also completed a 4-item Confidence in Leadership scale ($\alpha = .95$; Ivey & Kline, 2010). The relationship exchange quality of the supervisor-subordinate dyadic interpersonal relationship was assessed using Graen, Novak, and Summerkamp's (1982) 7-item LMX-7 measure of leader-member exchange ($\alpha = .90$).

Leader behaviors. Subordinates indicated the extent to which leadership behaviors appropriately describe those engaged in by their direct supervisors at work. Consistent with previous theory, empirical relationships, and factor structures, leadership behaviors were grouped into two higher-order dimensions (Bass, 1985): passive leadership and active leadership. Active leadership was measured using two scales focused on relationship-oriented behaviors (consideration, transformational) and two scales of task-oriented behaviors (initiating structure, transactional). Passive leadership behaviors were assessed using measures of passive management-by-exception leadership and laissez-faire leadership. All behaviors were reported on a 5-point Likert scale (1 = "strongly disagree, 2 = "somewhat disagree", 3 = "neither agree nor disagree", 4 = "somewhat agree", 5 = "strongly agree").

Active relationship-oriented leadership behaviors were measured with Schriesheim and Stogdill's (1990) 10-item scale of *Consideration Leadership* ($\alpha = .83$) and Carless, Wearing, and Mann's (2000) 7-item Global Transformational Leadership Scale (GTL; $\alpha = .93$) assessing *Transformational Leadership* behaviors. Active task-oriented leadership behaviors were measured using Schriesheim and Stogdill's (1975) 10-item *Initiating Structure* scale ($\alpha = .88$) and Podsakoff and colleagues' (1990) 5-item

measure of *Transactional Leadership* ($\alpha = .90$).

Passive leadership behaviors were measured using two scales assessing laissez-faire leadership and management-by-exception. Hinkin and Schriesheim's (2008) 10-item scale of *Laissez-Faire leadership* ($\alpha = .92$) is comprised of two subdimensions for reward omissions ($\alpha = .96$; 5-items) and punishment omissions ($\alpha = .97$; 5-items). *Management-by-Exception* was measured with Bass's (1985) 6-item scale of passive management-by-exception ($\alpha = .86$), which is a subdimension of the MLQ-1.

Results

Zero-order correlations among the focal variables are reported along with descriptive statistics (e.g., means, standard deviations) in Table 2. Prior to conducting tests of hypotheses, a confirmatory factor analysis (CFA) was performed to address the relationships amongst the leadership behavioral styles and the leader relationship quality variables to establish their factor structure. CFAs were conducted for a single factor (baseline) model, a 2-factor model (factor 1: leaders styles, factor 2: leadership relationships), and a 9 factor model (each variable as its own factor). A CFA was conducted to establish the factor structure and to address the high correlations amongst the leadership behaviors and relationship variables. High correlations can suggest a lack of construct discrimination amongst the measures. As such, it is important to address whether the measures are utilized best as separate constructs or if they should be combined to form higher order constructs for leadership and relationship quality when testing the hypotheses. The one-factor model and two-factor model were not significantly different nor did they demonstrate adequate fit statistics based upon agreed cut-offs (Hu & Bentler, 1999). When all items for leadership styles and relationship quality were allowed to load freely in a one-factor model, the fit statistics did not meet recommended cut-offs ($\chi^2 (1890) = 6964.73, p < .001, CFI = .65, RMSEA = .14, SRMR = .12$) nor were the fit indices adequate for the two-factor model in which items were constrained to load onto leadership styles and relationship quality ($\chi^2 (1889) = 6601.73, p < .001, CFI = .66, RMSEA = .13, SRMR = .12$). The factors were allowed to correlate given evidence from the zero-order correlations and previous literature reporting their strong associations. The

9-factor model with each scale serving as its own factor demonstrated the best fit ($\chi^2(1854) = 4575.24, p < .001, CFI = .81, RMSEA = .10, SRMR = .08$) and a significantly better fit than the other two models, as determined by a significant change in the chi-square between models ($p < .001$).

Results from Construct Correlations

The relationships present amongst the focal variables are generally in the expected and hypothesized directions. Hypothesis 1, which predicted positive relationships of health behaviors (a.) physical activity, (b.) diet, (c.) sleep hours and quality, and (d.) alcohol consumed and tobacco used, with well-being, received partial support. Physical activity (Hypothesis 1a) significantly relates to the composite measure of well-being ($r = .26, p < .01$; composite of vitality and general health). At the dimension level, physical activity only shared a significant relationship with general health ($r = .26, p < .01$) and is not significantly related to vitality ($r = .18$). Similarly for Hypothesis 1c, the average number of hours supervisors' reported receiving each night over the previous week was related significantly to the composite variable of well-being ($r = .20, p < .05$) but was only related to general health at the dimension level ($r = .20, p < .05$; vitality, $r = .15, n.s.$). Reports of sleep quality however shared significant and positive relationships with the composite measure of well-being ($r = .38, p < .05$) and both dimensions for vitality ($r = .28, p < .05$) and general health ($r = .38, p < .05$). Relationships between diet (H1b) and the use of alcohol and tobacco (H1d) did not have significant relationships with the composite measure of well-being nor with its two dimensions.

Hypothesis 2 predicted that well-being would be (a) positively related to active leadership behaviors and (b) negatively related to passive leadership behaviors. Zero-

order correlations showed no direct and significant relationships between reports of well-being at the composite and dimension levels with subordinates' reports of their supervisors' leadership behaviors at work. The majority of reported correlations are notably small, with correlations for well-being ranging from $-.04$ to $.11$. The range of correlations at the subscale level were similar (vitality: r ranged from $-.04$ to $.07$; general health: r ranged from $-.04$ to $.12$). Interestingly, the direct relationships between health behaviors and leadership behaviors shared similar sized (and nonsignificant) correlations to well-being (LTPA: r ranged from $-.04$ to $.12$; sleep hours: r ranged from $-.05$ to $.04$; sleep quality: r ranged from $-.03$ to $.11$; alcohol consumption: r ranged from $-.16$ to $.00$; tobacco use: r ranged from $-.10$ to $.02$; diet: r ranged from $-.14$ to $.02$). Amongst these correlations, no clear patterns emerged amongst the shared relationships between the self-reported health behaviors and subordinate-reported leadership behaviors. It is important to note that the relationships' correlations of health behaviors and well-being with leadership behaviors are not statistically significant nor are the majority of them approaching significance (exception of relationship between alcohol consumption and consideration leadership, $r = -.16, p = .12$).

Hypothesis 3 and 4 proposed that well-being would mediate the relationships between supervisors' health behaviors and active (H3) and passive (H4) leadership behaviors, respectively. These hypotheses received no support. To test a mediation model, support for hypothesis 2 is required—namely, significant relationships between well-being and leadership behaviors. Since no significant relationships were present, a test of mediation is not possible since there is no support for one of the direct links in the mediated model. More specifically, health behaviors would need to be significantly related to well-being and well-being would need to be significantly related to leadership

behaviors. Though some health behaviors (physical activity and sleep) relate to well-being, about half do not share significant relationships. Additionally, no relationships are present between well-being and leadership behaviors making mediation analyses moot for hypotheses 3 and 4.

Hypothesis 5a and 5b predicted relationships between subordinate-reports of their supervisors' leadership behaviors and the quality of the relationship they share with their supervisors. Consistent with previous studies addressing the relationships amongst active and passive leadership behaviors and supervisor-subordinate relationships (Ivey & Kline, 2010; Lyons & Schneider, 2009; Podsakoff, et al., 1990), these hypotheses received full support. The relationships between the active leadership behaviors (H5a) addressing relationship-oriented leadership styles and supervisor-subordinate relationship quality were statistically significant, specifically: Transformational Leadership (Confidence in Leader $r = .80$, Trust/Loyalty in Leader $r = .69$, Leader-Member Exchange $r = .73$, $p < .01$) and Consideration Leadership (Confidence $r = .83$, Trust/Loyalty $r = .68$, Leader-Member Exchange $r = .81$, $p < .01$). Similarly, the correlations between task-oriented active leadership behaviors and relationship quality were statistically significant, specifically: Initiating Structure (Confidence $r = .69$, Trust/Loyalty $r = .38$, Leader-Member Exchange $r = .68$, $p < .01$) and Transactional Leadership (Confidence $r = .60$, Trust/Loyalty $r = .65$, Leader-Member Exchange $r = .65$, $p < .01$). Hypothesis 5b also received support such that negative and significant relationships were present between reported passive leadership behaviors and supervisor-subordinate relationships quality for Management-By-Exception (Confidence $r = -.31$, Trust/Loyalty $r = -.37$, $p < .01$) and Laissez-Faire (Confidence in Leader $r = -.54$, Trust/Loyalty in Leader $r = -.55$, Leader-Member Exchange $r = -.50$, $p < .01$). The relationship between Management-by-

Exception and Leader-Member Exchange fell just shy of significance at $p < .05$ ($r = -.18$) thus Hypothesis 5b received support except for the latter relationship. In sum, subordinates reported higher relationship quality with their supervisors when their supervisors engaged in more active leadership behaviors. Conversely, when supervisors were more passive, supervisor-subordinate relationship quality suffered.

Lastly, hypothesis 6 proposed that the leadership behaviors would mediate the relationships between well-being and supervisor-subordinate relationship quality. Similar to hypothesis 4, since relationships were not significant between each link in the proposed mediation model, mediation analyses were not conducted. In order to assess hypothesis 6, hypothesis 2 required support, for which there is no indication of significant relationships between well-being and leadership behaviors. Thus, hypothesis 6 was not supported.

In sum, hypothesis 1 received partial support, hypothesis 5a and 5b were largely supported and the other hypotheses did not receive support. For the relationships that are supported in hypothesis 1 and 5, hierarchical regressions were performed to control for demographic and personality variables that are likely to covary with the focal variables. The demographic and personality variables included as controls in step 1 of each regression were chosen based upon previously established relationships and evidence from the zero-order correlations amongst the variables. Supervisors' age, gender, highest level of education, tenure in their current job position, self-esteem and positive affect demonstrated significant correlations with several of the study's focal variables and previously have been reported to share empirical and theoretical relationships with the focal variables.

Table 2. Zero-order correlations amongst focal variables

Variables	Health Behaviors					Well-Being					Leadership		Leader Relationships			Controls				
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Active	Passive	13.	14.	15.	16.	17.	18.	19.	20.
1. LTPA	--																			
2. Sleep Hrs	.04	--																		
3. Sleep Qual	.08	.32	--																	
4. Alcohol	.04	-.13	-.05	--																
5. Tobacco	-.02	.06	.08	.05	--															
6. Diet	-.02	.24	.10	.02	.17	--														
7. Well-Being	.26	.20	.38	-.15	-.04	.13	(.86)													
8. Vitality	.18	.15	.28	-.10	.06	.18	.85	(.82)												
9. Gen. Health	.26	.20	.38	-.16	-.11	.07	.91	.56	(.82)											
10. Consideration	.02	.04	.04	-.16	-.09	-.12	.11	.06	.12	(.83)										
11. Transform	.01	.04	.05	-.04	-.10	-.10	.01	.01	.02	.81	(.93)									
12. IS	.12	-.03	.02	-.09	-.05	-.13	.08	.04	.09	.64	.75	(.88)								
13. Transactional	-.01	.02	.03	-.08	-.04	-.06	.06	.07	.05	.69	.73	.54	(.90)							
14. MBE	.02	.02	.11	-.00	.02	-.14	-.04	-.04	-.04	-.26	-.27	-.02	-.37	(.86)						
15. LF	-.04	-.05	-.03	.00	.02	.02	-.01	-.04	.02	-.58	-.58	-.41	-.69	.44	(.92)					
16. Confidence	.06	.03	.01	-.12	-.19	-.12	.08	.04	.10	.80	.83	.69	.60	-.31	-.54	(.95)				
17. Trust	.05	.16	.13	.02	-.14	-.06	.06	.02	.09	.69	.68	.38	.65	-.37	-.55	.72	(.82)			
18. LMX	.01	.03	.09	.01	-.15	-.09	.02	.01	.02	.73	.81	.68	.65	-.18	-.50	.80	.69	(.90)		
19. Self-Esteem	.09	-.04	.10	-.11	-.06	-.02	.27	.16	.29	.04	-.05	.06	.03	.16	.06	.09	.11	.07	(.83)	
20. Positive Affect	.05	.14	.24	-.21	-.05	.06	.63	.63	.50	.09	.05	.10	.10	-.01	.04	.14	.14	.13	.45	(.92)
Mean	595.06	6.83	2.96	4.41	7.33	28.18	3.72	3.48	3.92	4.17	4.27	4.04	4.06	2.95	2.03	4.52	4.24	4.11	4.50	3.84
St. Dev.	969.51	.97	.84	6.28	29.04	18.52	.62	.68	.71	.63	.81	.69	.99	.90	.97	.78	.73	.77	.50	.68

Correlations greater than $\pm .19$ are significant at $p < .05$;

Correlations greater than $\pm .25$ are significant at $p < .01$.

$N = 95-107$; LTPA = Leisure Time Physical Activity score, Sleep Hrs = average sleep received (hours), Sleep Qual = Sleep Quality, Alcohol = Weekly Alcohol Consumption, Tobacco = Weekly Tobacco Use, Diet = Nutrition Discrepancy Score (negative score indicates better diet), Transform = Transformational, IS = Initiating Structure, MBE = Management by Exception, LF = Laissez-Faire, Confidence = Confidence in Leader, Trust = Trust/Loyalty in Leader, LMX = Leader-Member Exchange.

Results from Regression Analyses

Tables 3 through 6 report results of regression analyses for health behaviors as predictors of well-being outcomes. Tables 3 and 5 contain information for the relationships which were significant at the correlation-level whereas table 4 includes information for all predictors (e.g. diet, alcohol, tobacco, sleep, physical activity) and table 3 includes analyses for predictors (alcohol, tobacco, diet) which shared non-significant relationships with the outcomes. Since the relationships between the significant and non-significant predictors (table 4) share similar trends with the regressions that include only significant predictors, the following discussion of results will focus on regressions containing only the significant predictors (e.g. sleep hours, sleep quality, and physical activity; table 3) for the sake of simplicity. Table 3 reports the regression analyses for the relationships between physical activity and sleep with well-being and its two dimensions of vitality and general health. To address the potential for multicollinearity amongst the predictor variables, another series of regressions were conducted in which each well-being criterion was regressed on each health behavior individually in the equation. For example, rather than including physical activity, sleep hours and sleep quality as predictors, table 5 reports well-being regressed on only physical activity, well-being regressed on sleep hours, and well-being regressed on sleep quality, and so on for the other criteria. The results for the separate regressions are reported in Table 5 for the significant relationships of physical activity and sleep, and in Table 6 for the non-significant relationships of alcohol consumption, tobacco use, and diet. There was no change in the significance (p -value) of the variance accounted for in well-being by its predictors between tables 3 and 5. The primary difference in results when regressing well-being on all the predictors simultaneously versus on each

individually is visible in the magnitude of the beta-weights. As is statistically expected, the magnitude of the beta-weights, and thus variance accounted for in the criterion by the predictor, increased when the criterion was regressed on the individual predictors. Given that the relationships' significance is the same across the two regression approaches, the results from table 3 will be discussed for simplification.

In tables 3 and 5, control variables were entered in step 1 of the hierarchical regression. The control variables, as a group, account for significant variance in well-being at the composite ($F = 11.52, p < .001$) and dimension levels (vitality: $F = 12.19, p < .001$; general health: $F = 6.23, p < .001$). A predominant pattern emerged amongst the demographic and personality variables with regards to positive affect. Notably, positive affect shares strong and significant relationships with well-being ($\beta = .62, p < .001$), vitality ($\beta = .67, p < .001$), and general health ($\beta = .46, p < .001$). Given its strong positive correlation with well-being ($r = .63, p < .01$) and its subdimensions (vitality: $r = .63, p < .01$; general health: $r = .50, p < .01$) along with the paralleling beta-weights, it may be that positive affect and well-being are measuring underlying cognitive affective states rather than discriminating constructs. The only variable to share a significant relationship with well-being, aside from positive affect, is the supervisors' tenure in their current position ($\beta = -.18, p < .05$), such that supervisors who had held their current job position longer reported lower levels of vitality. The other control variables, including supervisor's gender, age, highest attained education level, and self-esteem do not share significant relationships with well-being. The health behaviors reported by supervisors were entered in step 2 of the regression. Physical activity, when controlling for covariates, was significantly related to well-being at the composite level ($\beta = .18, p < .05$) and general health at the dimension level ($\beta = .18, p < .05$). The number of hours of sleep

supervisors reported receiving did not share significant relationships with well-being when controlling for covariates. Sleep quality, similar to physical activity, shared significant relationships with both well-being ($\beta = .24, p < .01$) and general health ($\beta = .27, p < .01$). Paralleling previously reported correlations for physical activity and sleep quality with well-being, the latter results provide further substantiation for hypothesis 1. The addition of control variables attenuated the relationships between physical activity, hours of sleep received and sleep quality. Physical activity and sleep quality maintained significant relationships with the criteria of well-being with the addition of the control variables. When well-being and its dimensions were regressed on the number of hours of sleep received following the addition of control variables, the relationships were no longer significant.

Table 3. Hierarchical regression for relationships between physical activity, sleep, and well-being

Predictors	Well-Being	Criteria Vitality	General Health
<i>Step 1: Covariates</i>			
Gender	-.10	-.11	-.07
Age	-.01	-.00	-.00
Education	-.07	-.02	-.09
Tenure with Current Job Position	-.15	-.18*	-.10
Self-Esteem	-.03	-.16	.07
Positive Affect	.62***	.67***	.46***
<i>F</i>	11.52***	12.19***	6.23***
<i>R</i> ²	.42	.43	.28
<i>Step 2: Health Behaviors</i>			
Leisure-Time Physical Activity	.18*	.12	.18*
Sleep Hours	.05	.03	.06
Sleep Quality	.24**	.13	.27**
ΔF	6.37***	2.07	6.29***
ΔR^2	.10	.04	.12
<i>Model F</i>	11.08***	9.09***	6.93***
<i>R</i> ²	.52	.47	.40

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: $N = 107$ supervisor-subordinate pairs; Covariates are supervisor self-reported (e.g. supervisor's age). Standardized regression coefficients are reported in the table. Regression coefficients reflect value at each step. Gender is coded at Male = 0 and Female = 1, Tenure was reported in months.

Table 4. Hierarchical regression for relationships between all health behaviors and well-being

Predictors	Well-Being	Criteria Vitality	General Health
<i>Step 1: Covariates</i>			
Gender	-.07	-.03	-.08
Age	.05	-.13	-.02
Education	-.08	-.06	-.09
Tenure with Current Job Position	-.17	-.24*	-.09
Self-Esteem	-.03	-.11	.04
Positive Affect	.63***	.68***	.47***
<i>F</i>	10.97***	12.62***	5.72***
<i>R</i> ²	.43	.47	.28
<i>Step 2: Health Behaviors</i>			
Leisure-Time Physical Activity	.17*	.09	.20*
Sleep Hours	.01	-.07	.07
Sleep Quality	.23**	.14	.26**
Alcohol Consumption	-.05	-.03	-.06
Tobacco Use	-.03	-.08	-.10
Diet	.07	.12	.02
ΔF	2.63*	1.15	3.13***
ΔR^2	.09	.04	.14
<i>Model F</i>	7.42***	6.95***	4.85***
<i>R</i> ²	.52	.43	.42

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: N = 107 supervisor-subordinate pairs; Covariates are supervisor self-reported (e.g. supervisor's age). Standardized regression coefficients are reported in the table. Regression coefficients reflect value at each step. Gender is coded at Male = 0 and Female = 1, Tenure was reported in months.

Table 5. Hierarchical regression for relationships between physical activity, sleep, and well-being (regressed separately)

Predictors	Well-Being			Criteria Vitality			General Health		
	<i>Step 1: Covariates</i>								
Gender									
Age									
Education									
Tenure with Current Job Position									
Self-Esteem									
Positive Affect									
<i>F</i>									
<i>R</i> ²									
<i>Step 2: Health Behaviors</i>									
Leisure-Time Physical Activity									
Sleep Hours									
Sleep Quality									
	LTPA	Sleep Hrs	Sleep Quality	LTPA	Sleep Hrs	Sleep Quality	LTPA	Sleep Hrs	Sleep Quality
ΔF	7.14**	3.11	12.60	3.11	.89	3.73	6.35**	3.33	13.07***
ΔR^2	.04	.02	.07	.02	.01	.02	.05	.02	.09
<i>Model F</i>	11.52***	10.53***	12.85***	11.12***	10.57***	11.28***	6.54***	5.94***	7.88***
<i>R</i> ²	.47	.43	.48	.45	.44	.45	.32	.30	.37

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: N = 107 supervisor-subordinate pairs; Covariates are supervisor self-reported (e.g. supervisor's age). Standardized regression coefficients are reported in the table. Regressions for health behaviors were each done separately given the potential for covary relationships amongst the predictor variables. Regression coefficients reflect value at each step. Gender is coded at Male = 0 and Female = 1, Tenure was reported in months.

Table 6. Hierarchical regression for relationships between diet, alcohol, tobacco, and well-being (regressed separately)

Predictors	Criteria								
	Well-Being	Vitality	General Health						
<i>Step 1: Covariates</i>									
Gender	-.10	-.11	-.07						
Age	-.01	-.00	-.00						
Education	-.07	-.02	-.09						
Tenure with Current Job Position	-.15	-.18*	-.10						
Self-Esteem	-.03	-.16	.07						
Positive Affect	.62***	.67***	.46***						
<i>F</i>	11.52***	12.19***	6.23***						
<i>R</i> ²	.42	.43	.28						
<i>Step 2: Health Behaviors</i>									
Alcohol Consumption	-.03	.03	-.06						
Tobacco Use	-.01	.10	-.08						
Diet	.07	.11	.03						
	Alcohol	Tobacco	Diet	Alcohol	Tobacco	Diet	Alcohol	Tobacco	Diet
ΔF	.10	.00	.78	.10	1.56	1.99	.41	.81	.09
ΔR^2	.00	.00	.01	.00	.01	.01	.00	.01	.00
<i>Model F</i>	9.79***	9.77***	9.48***	10.37***	10.73***	11.23***	5.36***	5.44***	4.86***
<i>R</i> ²	.42	.42	.44	.43	.44	.48	.28	.28	.28

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: N = 107 supervisor-subordinate pairs; Covariates are supervisor self-reported (e.g. supervisor's age). Standardized regression coefficients are reported in the table. Regressions for health behaviors were each done separately given the potential for covary relationships amongst the predictor variables. Regression coefficients reflect value at each step. Gender is coded at Male = 0 and Female = 1, Tenure was reported in months.

Hierarchical regressions were also performed to assess the relationships, predicted in hypothesis 5, between leadership behaviors and supervisor-subordinate relationships quality after controlling for relevant demographic (gender, age, education, tenure in current position) and personality variables (self-esteem and positive affect). Results are reported in tables 7 (relationship-oriented active leadership), 8 (task-oriented active leadership) and 9 (passive leadership). Given the magnitude of the correlated relationships amongst the leadership behaviors and their theoretical overlap, the criteria were regressed individually on each leadership behavior to account for statistical issues due to multicollinearity amongst the predictors. Control variables account for significant variance in two of the three criteria, specifically confidence in the leader ($F = 2.16, p < .05$) and trust/loyalty in the leader ($F = 3.22, p < .01$). Regressing leader-member exchange on the covariates does not result in a significant relationship. Of the demographic (gender, age, education, position tenure) and personality (self-esteem, positive affect) variables controlled for, significant relationships were few. Supervisors whom reported holding their current position for longer were more likely to have subordinates report lower levels of confidence in their supervisors' leadership ($\beta = -.36, p < .01$). Subordinate-reported trust and loyalty in their leader is higher when the supervisor is male ($\beta = -.20, p < .01$) and increases with the supervisor's education level ($\beta = .26, p < .01$).

All the leadership behaviors accounted for significant variance in the criteria of confidence in leader, trust/loyalty in the leader, and LMX after controlling for demographic and personality covariates, with the exception of the regression of leader-member exchange (LMX) on management-by-exception which was not significant. All

relationships were in the expected direction and of a large magnitude which parallels previously reported empirical and theoretical relationships amongst the leadership behaviors and leader relationship quality criteria. Specifically, as reported in Table 7, the relationship-oriented active leadership behaviors of transformational leadership and consideration leadership are strongly and positively related to confidence (transformational: $\beta = .82$, consideration: $\beta = .80$, $p < .001$), trust/loyalty (transformational: $\beta = .66$, consideration: $\beta = .66$, $p < .001$), and LMX (transformational: $\beta = .82$, consideration: $\beta = .76$, $p < .001$). Transformational and consideration leadership also accounted for a significant proportion of variance ($p < .001$ for all model F-values) in each of the three leader relationship criterion of confidence (transformational: $F = 38.66$; consideration: $F = 26.79$), trust/loyalty (transformational: $F = 90.17$; consideration: $F = 73.99$), and LMX (transformational: $F = 186.33$; consideration: $F = 103.52$). Likewise, the task-oriented active leadership behaviors of transactional leadership and initiating structure leadership accounted for a significant amount of variance in the relationships criteria (*transactional*: confidence $F = 10.41$, trust/loyalty $F = 11.95$; LMX $F = 11.93$; *initiating structure*: confidence $F = 15.46$, trust/loyalty $F = 5.95$; LMX $F = 12.76$; $p < .001$). The beta-weights for initiating structure and transactional leadership are all significant at $p < .001$ such that increases in both types of task-oriented active leadership behaviors resulted in increased confidence and trust/loyalty in the leader and higher quality LMX (see Table 8). As expected, the passive leadership behaviors of management-by-exception and laissez-faire leadership (see Table 9), were negatively and significantly related to confidence, trust/loyalty and LMX with the exception of management-by-exception and LMX. A significant amount of variance is accounted for in all but one of the regressions of passive leadership behaviors and

leader relationship criteria (*management-by-exception*: confidence $F = 3.46, p < .01$, trust/loyalty $F = 5.26, p < .001$; *laissez-faire*: confidence $F = 8.57$, trust/loyalty $F = 9.56$; LMX $F = 6.39; p < .001$). The lack of a significant regression for LMX and management-by-exception ($\beta = -.17, F = 1.40, n.s.$) is consistent with the non-significant correlation between management-by-exception and LMX ($r = -.18, n.s.$).

Thus, relationship-oriented active behaviors (transformational and consideration leadership) and task-oriented active behaviors (transactional and initiating structure) demonstrate consistent relationships with the aforementioned zero-order correlations when the leader relationship criteria are regressed on the active leadership behaviors. Additionally, the active leadership behaviors each accounted for a significant proportion of variance in the relationship criteria when each was analyzed in separate regressions. Confidence and trust/loyalty in one's leader along with a subordinate's perceived quality of exchange relationship (LMX) are stronger when the supervisor is perceived by his or her subordinate as displaying active leadership behaviors. Also, as hypothesized and supported by initial correlated relationships, passive leadership behaviors are significantly and negatively related to the leader relationship quality criteria such that lower quality exchange relationships (LMX), trust/loyalty and confidence are felt by subordinates when their supervisors engage in passive leadership behaviors. In addition, passive leadership behaviors accounted for a significant amount of variance for each criteria, lending further support to hypothesis 5. With the exception of the non-significant relationship between management-by-exception and LMX, the results from the regression analyses provide nearly complete support for hypothesis 5. The results from the regression analyses parallel the relationships amongst the correlations between the leadership behaviors and well-being.

Table 7. Hierarchical regressions for relationship-oriented active leadership behaviors and relationship quality

Predictors	Criteria					
	Confidence in Leader		Trust/Loyalty in Leader		Leader-Member Exchange	
<i>Step 1: Covariates</i>						
Gender	-.09		-.20*		.02	
Age	.16		.11		.18	
Education	.03		.26*		.01	
Tenure with Current Job Position	-.36**		-.18		-.22	
Self-Esteem	.01		.02		-.01	
Positive Affect	.13		.17		.15	
<i>F</i>	2.16*		3.22**		1.12	
<i>R</i> ²	.12		.17		.07	
<i>Step 2: Leadership Behaviors</i>						
Consideration Leadership	.80***		.66***		.76***	
Transformational Leadership	.82***		.66***		.82***	
	Consideration	Transformational	Consideration	Transformational	Consideration	Transformational
ΔF	153.68***	226.83***	73.99***	90.17***	103.52***	186.33***
ΔR^2	.55	.62	.37	.41	.49	.62
<i>Model F</i>	26.79***	38.66***	15.45***	18.24***	16.78***	29.45***
<i>R</i> ²	.67	.74	.54	.58	.56	.69

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: N = 107 supervisor-subordinate pairs; Covariates are supervisor self-reported (e.g. supervisor's age). Standardized regression coefficients are reported in the table. Regressions for health behaviors were each done separately given the potential for covary relationships amongst the predictor variables. Regression coefficients reflect value at each step. Gender is coded at Male = 0 and Female = 1, Tenure was reported in months.

Table 8. Hierarchical regressions for task-oriented active leadership behaviors and relationship quality

Predictors	Criteria					
	Confidence in Leader		Trust/Loyalty in Leader		Leader-Member Exchange	
<i>Step 1: Covariates</i>						
Gender	-.09		-.20*		.02	
Age	.16		.11		.18	
Education	.03		.26*		.01	
Tenure with Current Job Position	-.36**		-.18		-.22	
Self-Esteem	.01		.02		-.01	
Positive Affect	.13		.17		.15	
<i>F</i>	2.16*		3.22**		1.12	
<i>R</i> ²	.12		.17		.07	
<i>Step 2: Leadership Behaviors</i>						
Initiating Structure Leadership	.67***		.38**		.67***	
Transactional Leadership	.59***		.58***		.67***	
	Initiating Structure	Transactional	Initiating Structure	Transactional	Initiating Structure	Transactional
ΔF	83.91***	52.85***	18.71***	53.61***	77.24***	71.78***
ΔR^2	.42	.32	.14	.30	.42	.40
<i>Model F</i>	15.46***	10.41***	5.95***	11.95***	12.76***	11.93***
<i>R</i> ²	.54	.44	.31	.47	.49	.47

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: N = 107 supervisor-subordinate pairs; Covariates are supervisor self-reported (e.g. supervisor's age). Standardized regression coefficients are reported in the table. Regressions for health behaviors were each done separately given the potential for covary relationships amongst the predictor variables. Regression coefficients reflect value at each step. Gender is coded at Male = 0 and Female = 1, Tenure was reported in months.

Table 9. Hierarchical regressions for passive leadership behaviors and relationship quality

Predictors	Criteria					
	Confidence in Leader		Trust/Loyalty in Leader		Leader-Member Exchange	
<i>Step 1: Covariates</i>						
Gender	-.09		-.20*		.02	
Age	.16		.11		.18	
Education	.03		.26*		.01	
Tenure with Current Job Position	-.36**		-.18		-.22	
Self-Esteem	.01		.02		-.01	
Positive Affect	.13		.17		.15	
<i>F</i>	2.16*		3.22**		1.12	
<i>R</i> ²	.12		.17		.07	
<i>Step 2: Leadership Behaviors</i>						
Management-By-Exception	-.30**		-.35***		-.17	
Laissez-Faire	-.54***		-.52***		-.53***	
	Management-By-Exception	Laissez-Faire	Management-By-Exception	Laissez-Faire	Management-By-Exception	Laissez-Faire
ΔF	10.04***	41.46***	14.67***	39.64***	2.93	35.57***
ΔR^2	.09	.27	.11	.25	.03	.26
<i>Model F</i>	3.46**	8.57***	5.26***	9.56***	1.40***	6.39***
<i>R</i> ²	.21	.40	.28	.42	.09	.32

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: N = 107 supervisor-subordinate pairs; Covariates are supervisor self-reported (e.g. supervisor's age). Standardized regression coefficients are reported in the table. Regressions for health behaviors were each done separately given the potential for covary relationships amongst the predictor variables. Regression coefficients reflect value at each step. Gender is coded at Male = 0 and Female = 1, Tenure was reported in months.

Discussion

The relationships between health behaviors and perceived well-being and between leadership behaviors and workplace relationship quality are well-studied. Alternatively, the majority of literature arguing for a linkage between leaders' health and leaders' ability to actively engage in their leadership role remains predominantly theoretical. This study sought to provide an empirical understanding of how supervisors' healthy lifestyle behaviors relate to their leadership behaviors and relationship quality at work. Specifically, this study assessed the health behaviors of supervisors (i.e. physical activity, diet, sleep quantity and quality, and smoking and alcohol use), supervisors' perceptions of their well-being (i.e. vitality, general health), subordinates perceptions of their supervisors' leadership behaviors at work, and the quality of the relationship between supervisors and subordinates. In general, previously established relationships amongst the variables were substantiated, such as between supervisors' leadership behaviors and reported leader relationships (e.g., Yukl, O'Donnell, & Taber, 2009).

Unfortunately, no support was found for the link between supervisors' health and well-being and the occurrence of active versus passive leadership behaviors. Though there are a few studies reporting that leaders engaging in healthier behaviors, such as physical activity, also have greater leader effectiveness (McDowell-Larsen, Kearney, & Campbell, 2002), the empirical literature on this is not well-established making this link amongst focal variables particularly exploratory. The most notable differences between one stand-out empirical study (McDowell-Larsen, et al.), notable since most literature linking healthier lifestyle behaviors with leadership behaviors is theoretical, and this

study relate to the organizational level of the leaders' assessed (e.g. mid-level supervisor, CEO) and the measurement of leadership and physical activity.

McDowell-Larsen and colleagues reported that other-ratings from two 360-degree feedback assessments of effective leadership performance demonstrated a significant difference in leader effectiveness ratings for supervisors deemed “exercisers” when compared to upper-level leaders who do not exercise (termed “non-exercisers). Notably, McDowell-Larsen and colleagues used more precise measures of exercise habits and intensity which were collected via self-report measures and one-on-one interviews by health and fitness professionals. Based upon the information collected, the high-level leaders were grouped into one of two groups—“exerciser” or “non-exerciser”—thus, dichotomizing exercise behaviors. Conversely, the current study relied on a self-report measure of physical activity frequency and intensity from the previous week. Exercise behaviors were not dichotomized, but rather left as a continuous variable in order to maximize variability in the predictor for analyses. In addition and differing from this study, McDowell-Larsen’s study assessed exercise behaviors over the previous six months attesting to lifestyle patterns more specifically. Another significant difference in methodology lies with the measures of leadership. McDowell-Larsen and colleagues utilized competency-based measures of leaders’ effectiveness. This study looked at the incidence of leadership styles rather than direct effectiveness. Lastly, the supervisors in the current study were predominantly low- to mid-level managers whereas in McDowell-Larsen’s study, 62% of the managers were at the executive level of their organizations. The latter has significant implications demographically (more males, older, predominantly Caucasian amongst higher levels of leadership) and for the accrual of health benefits to bear more weight on a daily basis resulting from living with healthy

versus unhealthy lifestyle behaviors. The latter suggests a snowballing effect may occur in which healthy lifestyle behaviors earlier in life accrue to better enable cognitive capacity, flexibility and endurance for high level leadership roles later in life. In essence, the present study looks at supervisors' leadership early to mid-way through their careers whereas McDowell-Larsen and colleagues assess supervisors' on the other end of their careers. The results of personality variables likely further confound this healthy lifestyle snowballing effect given that several personality and dispositional variables relate to both leadership and healthy lifestyle behaviors such as exercise (e.g. conscientiousness, proactivity, self-esteem). McDowell-Larsen and colleagues' study and this study underscore the importance of collecting and reporting both basic and complex relationships amongst a variety of populations occupying leadership roles and the variety of ways in which leadership performance and approaches are measured.

The first hypothesis predicted positive relationships between supervisors' reports of their health behaviors and their perceived well-being as defined by vitality (i.e. energy) and general health. The health behaviors, which served more broadly as indicators of a healthy lifestyle, include physical activity, a healthy diet, sleep, and avoidance of tobacco and excessive alcohol use. This hypothesis received partial support. The amount of time supervisors engaged in physical activity over the course of a week is related to reports of heightened well-being. The amount of sleep and the sleep quality reported by supervisors also shares a positive relationship with reports of well-being such that improved sleep quality and adequate sleep (7-9 hours) was associated with feelings of enhanced well-being. The uses of neither tobacco nor excessive alcohol were related to reports of well-being. Similarly, diet did not share a significant relationship with well-being. It is also important to note the strong, positive relationship positive affect shared with well-being

suggesting well-being and positive affect may be indicators of a broader affective life satisfaction or personality. Though positive affect shares strong relationships with well-being and its dimensions, it does not share the same pattern of significant relationships, at least when looking at correlations, with health behaviors. Specifically, increased well-being is significantly correlated with increased physical activity, the number of hours of sleep received, and sleep quality while increases in positive affect are significantly related to sleep quality and less frequent alcohol consumption. Future studies should seek to tease apart the similarities and differences between positive affect and measures of well-being as indicated by the vitality and general health subscales.

Several measurement and reporting issues may have impacted the observed relationships between well-being and health behaviors. Specifically, the relationships between tobacco, alcohol and reported diet may be inaccurate for several reasons, thus attenuating their observed statistical relationships. First, concerns over providing socially desirable answers may cause participants to report the use of tobacco and alcohol less frequently and also indicate consuming more “healthy” food options and fewer less healthy foods. Second, there may be a low base rate for the use of tobacco and alcohol amongst supervisors. A low base rate may reduce the variability present amongst responses, thus decreasing the probability of seeing an effect when looking at the relationships shared with well-being. Of the supervisors who did consume alcohol over the previous week (54.8% of supervisors), the majority reported consuming six or fewer drinks in the previous 7 days. Only 5.8% of those who drank reported drinking more than the recommended limit of two drinks, on average, each day. The base rate for supervisors who reported using tobacco was far less than alcohol further reducing response variability and an ability to detect significant relationships occurring between tobacco usage, well-

being and leadership. Only 7.4% of supervisors reported using tobacco products in the previous 7 days. Of those who used tobacco, less than 58.3% reported an average frequency of use just under 5 times each day (on average, 4.9 times/day).

A third reason tobacco, alcohol and diet may be misreported and thus the statistical relationships muddled, is due to participants' limited capacity to recall the frequency of events over the previous 24-hours and week. Recall is consistently an issue with any self-report measure involving the frequency of events transpiring over a set period of time, particularly for topics such as food intake. Food intake questionnaires are often cited as being particularly prone to measurement error due to the need for the precise recall of the foods eaten, the portion size and contents of prepared food (Thompson, et al., 2002; 2008). Consequently, participants in this study may have misrepresented knowingly or unknowingly the portion size of food items or reported foods incorrectly. Self-reports of alcohol and tobacco use are burdened with similar measurement issues. For the measurement of alcohol consumption, the relationships may be complicated by the nature of business interactions and social events involving the consumption of alcoholic drinks (Schweitzer & Kerr, 2000). Norms related to the use of alcohol during meetings with clients, company functions, and other social gatherings may lend to alcohol being a complicated indicator of health when considering the realities of the role supervisors fulfill and various events they attend representing their organization. It may be the case that only in extreme cases, relationships exist between alcohol and well-being and also alcohol consumption and other focal variables. Since significant relationships were found for physical activity and sleep, it may be that some health-behaviors are more strongly associated with reports of well-being compared to others. In short, measurement issues are prevalent amongst the measures used for health behaviors.

These issues range from reporting errors to scale construction issues making it difficult to tease apart random versus true error.

In addition to measurement issues related to the predictors, the criteria of well-being are susceptible to issues of criterion contamination and criterion deficiency. Echoing the issues discussed with the health behavior predictors, it may be that subjective reports of one's own well-being are biased due to social desirability concerns and/or a general desire for individuals to think of themselves as healthy as opposed to admitting to ill health. Criterion deficiency is also a likely and notable culprit for the lack of significant relationships between health behaviors and well-being. Vitality and general health dimensions were used from the SF-36 scale, which is a well validated and established scale frequently used in public health and medical studies. Though encompassing the broad topics of one's perceived energy and overall health, the measure's items may have failed to appropriately address the aspects of health that are related more closely to the health behaviors assessed. For instance, previous research reports that relationships are shared between fatigue and burnout with physical activity (Toker & Biron, 2012) and abnormal sleep patterns (Armon, et al. 2008). Though fatigue is presumably on a similar continuum with energy or vitality, the context of the items may result in differential response patterns. It may also be the case the some well-being indicators, such as burnout and fatigue, show notably different relationships with health behaviors compared to vitality and general health perceptions. Thus, criterion deficiency may be a primary explanation for why the measure of well-being used did not relate with all of the health behaviors despite empirical and theoretical support for the relationships. In short, different measures of health and well-being may be more sensitive to and measure more appropriate, nuanced and/or significant relationships that the measure used

in this study.

Turning to hypothesis 2, it was proposed that an increase in well-being would be related to more active leadership behaviors and fewer passive leadership behaviors at work, as perceived by the supervisor's subordinate. This hypothesis did not receive support. The original theoretical construction and definitions of active and passive leadership, according to Barber (1977), explicitly notes the importance of leaders' energy investment in their leadership role. Higher levels of energy investment should, according to theory, be related to active leadership behaviors. The latter argument seemingly makes sense from a physiological perspective. If a leader does not have as much energy to utilize, he or she will find a way to more efficiently perform his or her role which may include taking a passive laissez-faire or management-by-exception approach where he or she only expends energy when absolutely necessary. The data however do not support the logic of this theoretical argument.

It may also be the case that, as mentioned in the previous paragraph, the measures used for well-being are culpable. It may be that a measure of burnout or fatigue rather than measures assessing positive health indicators, such as vitality, would be a better fit for differentiating the relationships between well-being and active/passive leadership behaviors. There is some evidence that reductions in fact-based well-being are related to less effective and engaged leadership. Specifically, McDowell-Larsen, Kearney, and Campbell (2002) reported that bosses who smoke were rated as less effective leaders overall. In addition, Judge and Cable (2011) report results indicating that male workers who smoke and/or consumed notable levels of alcohol had significantly lower salaries during a 25-year period when compared to male employees who abstained from both. Thus, factual well-being indicators which should relate over time to perceived well-being

are linked with leadership and performance. It is important to note that the evidence for the latter rests on theoretical arguments and studies which assessed smoking and leadership differently from the current study. For instance, McDowell-Larsen and colleagues noted a relationship between bosses' ratings of leaders' effectiveness and smoking behaviors in which smoking was related to lower ratings of effectiveness. Thus, a top-down rating from one's boss may differentially relate to perceptions of leadership compared to a bottom-up subordinate-rating of a supervisor, as reported in this study. Additional McDowell-Larsen and colleagues were not concerned with leaders' behaviors but rather their effective performance on a leader competency model. Similar to Judge and Cable's study of the longitudinal effects of smoking on promotions and wage earnings for workers over a 25-year time period, McDowell-Larsen references a longer timeframe (6 months or more of reported behavior) during which to compute average smoking behaviors. Conversely, this study relied on a shorter timeframe of the previous 7 days.

This suggests, as mentioned earlier, that a snowballing effect may be present when it comes to the impact of healthy lifestyle behaviors on leadership and career success. It could also be that those that are perceived by bosses as being less healthy are also perceived as not giving their job and career adequate concern. In the latter case, employees may be passed over for jobs because bosses making promotion decisions attribute the lack of concern for personal health and well-being to translate into a lack of concern for personal success and job performance. Thus, over time, studies that look at the relationships between health behaviors and leadership behaviors and performance may suffer from range restriction due to promotions and job opportunities (or lack of) earlier in employees' careers. The issue of time, career trajectory and subsequently the

accrual with age of the positive and negative effects of a leaders' lifestyle decisions are prominent factors in explaining why the current study did not have significant relationships amongst the focal variables but why studies looking at individuals occupying upper-level executive leadership roles and those farther in their careers and life see the significant effects of healthy lifestyle habits.

This highlights another possible confound that deserves greater attention when studying healthy lifestyle behaviors and leadership: age. Notably, age was included as a covariate in the regression analyses but was not significantly related to key constructs. In studies reporting relationships amongst health and leadership behaviors, the population studied is notably older than the population included in this study (Judge & Cable, 2011; McDowell-Larsen, et al., 2002). Though the age of supervisors was fairly diverse in the current study and on average around 40 years old, it is likely the case that true health deficits due to an unhealthy lifestyle do not occur until middle to late life. For instance, Britton, Shipley, Singh-Manous, and Marmot (2008) report that health behaviors, such as not smoking, drinking little to no alcohol, exercising, and maintaining a nutritious diet, in mid-life were predictive of individuals having lower rates of debilitating diseases (e.g. cancer, diabetes, stroke) and overall better health functioning 17-years later in life. Thus, to truly see variability as a result of lifestyle, an older population of supervisors, potentially occupying higher-level positions (as suggested by the McDowell-Larsen and colleagues' study) because higher levels of leadership (e.g. CEO) likely require more physical and cognitive demands (e.g. demanding schedule, travel, high impact decisions), may be needed to tease apart relationships between well-being and active/passive leadership behaviors.

Hypotheses 3 and 4 predicted that well-being would mediate the relationships

between health behaviors and active (H3) and passive (H4) leadership behaviors, respectively. A test of mediation was not performed since the assumptions of mediation require that each of the variables are related with the variable at the next step of the proposed model. Specifically, only some of the health behaviors were related to well-being and well-being was not significantly related to the leadership behaviors. Since mediation requires that these relationships are present, the assumptions were violated and the mediated model was not tested.

Hypothesis 5a and 5b predicted relationships between subordinate-reported leadership behaviors and the subordinates' perceived relationship with their supervisor. Hypothesis 5a stated that the supervisors engaging in more active leadership behaviors would also have higher quality relationships with their subordinates. Hypothesis 5b addressed passive leadership behaviors, positing that engaging in passive leadership behaviors would result in supervisors sharing in lower quality relationships with their subordinates. Support was found for these hypotheses both with and without the introduction of demographic and personality control variables. In general, subordinates who reported their supervisors engaged in active leadership behaviors more often also reported better quality relationships with their supervisors. This association between active leadership behaviors and relationship quality were robust for both relationship-oriented leadership styles (i.e. consideration, transformational) and task-oriented styles (i.e. initiating structure, transactional). Similarly, the relationships between passive leadership behaviors and relationship quality suggested that a higher occurrence of passive behaviors is related to lower relationship quality.

More specifically, supervisors displaying more relationship-oriented (consideration leadership and transformational leadership) and task-oriented

(transactional leadership and initiating structure leadership) active leadership behaviors had subordinates who felt more confidence, trust and loyalty in their supervisors' leadership. Greater displays of active leadership were also related to increased reports of high quality leader-member exchange (LMX) relationships. Thus, active leadership approaches are closely linked with subordinates feeling that they can rely on their supervisor to motivate, direct and lead them. These relationships are expected since relationship quality should hinge on leadership behaviors focused on maintaining relationships with others, motivating and influencing subordinates, and providing job specific guidance and attention.

Passive leadership behaviors shared significant relationships with the outcomes with the exception of one. Management-by-exception and laissez-faire leadership were assessed by subordinates as passive styles of leadership. Passive leadership behaviors were related to subordinates reporting lower quality relationships with their leaders such that they felt less confidence, trust, and loyalty in their supervisors' leadership and reported reduced exchange relationship quality. Only one relationship, between management-by-exception and LMX, was not significant. The latter relationship, though not statistically significant was in the expected negative direction. From a relationship-building perspective, supervisors who either demonstrate no concern for providing direction or only provide leadership when absolutely necessary are not likely to garner the confidence and trust of their subordinates. The relationship trends amongst both active and passive leadership behaviors with the indicators of relationship quality are consistent with previous literature suggesting that the participating supervisor-subordinate dyads in this study are "typical" of most working pairs. This is key given the exploratory nature of the relationships assessed in hypotheses 1 and 3. By establishing

expected empirical relationships between leadership behaviors and relationship quality, we can say with greater confidence the results reported for the other relationships are likely due to the variables and measures included as opposed to the participants sampled.

Hypothesis 6, the final hypothesis, predicted that active and passive leadership behaviors would mediate the relationship between supervisor-reported well-being and subordinate-rated relationship quality. This hypothesis could not be tested due to the lack of relationships amongst predictors and criteria. As mentioned previously when discussing the mediation in hypothesis 4, the violation of an assumption of mediation means that the mediated model could not be assessed.

Summary of Results

In sum, the relationships previously supported by empirical literature were also supported in the present study. Notably physical activity and sleep shared expected relationships with well-being (Armon, et al., 2008; Edwards, 2006; McDowell-Larsen, Kearney, & Campbell, 2002; Puetz, 2006). Relationship-oriented and task-oriented active leadership behaviors also shared previously established relationships with the quality of the relationship between supervisors and subordinates (Bycio, Hackett, & Allen, 1995). Passive leadership behaviors, similarly, shared expected negative relationships with leader relationship quality criteria. The exploratory relationships assessed did not receive support, however. Theory and anecdotal evidence from practitioners suggests a relationship does exist between the lifestyle choices, the health of supervisors and their active engagement in their leadership roles. The present data do not support these claims. Future follow-up studies should account for methodological concerns related to measurement, the rater's perspective (self- vs. other-ratings), the use of objective and factual versus subjective perception-based ratings, and rater bias. The measures of factual

frequency-based health behaviors, such as physical activity and the amount of sleep received, were notably weaker psychometrically due to the need for accurate quantifiable recall of behaviors compared to the measures used throughout the rest of the study.

In addition, though this study utilized two sources of ratings, thus reducing concerns related to common source biases, the source of the ratings for the proposed model were essentially dichotomized with supervisors providing self-ratings for the first half of the model's relationships and subordinates providing ratings of their supervisors for the second half (see Figure 1). The lack of relationships between the first half of the model's health behaviors and well-being and the second half of the model may be due less to actual relationships and more to the two rating sources providing discrepant information. Despite the latter issue, the two sources also provide useful information since the purpose of the study was to understand if the factual frequency-based health behaviors and subjective-ratings of well-being of supervisors relate to the supervisors' leadership behaviors and relationship quality as perceived by those the supervisor directs. For the purposes of this study, the two rating sources were appropriate. Future studies should aim to understand the differential results when other sources are utilized for ratings. Related to the source of ratings is the issue of rater bias. When rating supervisors on their perceived leadership behaviors, it is not uncommon for subordinates to provide halo ratings of the supervisor such that they view their behaviors as either all good/positive or all bad/negative. Though the scales used in this study did not present any items which explicitly implied positive or negative behaviors, a basic understanding of effective leadership would allow a rater to know that a disengaged leader is less desirable than a leader who shows care and concern. As such, variability and an ability to detect significant relationships may fall victim to halo errors on the leadership scales. Relatedly,

future studies should also aim for a larger sample size to increase power and the ability to statistically detect significant relationships amongst the predictor and outcome variables. Generally, the effect sizes of the significant relationships observed were small to moderate in size. Power analyses indicate that, given the total number of predictors included in this study's model (see Figure 1), a minimum sample of approximately 120 (moderate effect size) to 200 (small effect size) participant pairs are necessary to observe statistically significant effects.

By teasing out the aforementioned methodological concerns, a clearer picture of the relationships between leaders' health behaviors and the use of active versus passive leadership orientations will come into fruition. Future studies should not only address the methodological concerns discussed but also address a variety of constructs which are closely related to those addressed in this study. For example, physical activity is empirically related to burnout, depression, and energy/fatigue (Edwards, 2006; Toker & Biron, 2012). This study, relatedly, examined physical activity's relationship with vitality and general health. Along similar lines, future research should examine measures of constructs that share convergent and discriminant validity with this and previous studies' focal variables in order to build a better foundation for future research on health promotion, leadership and occupational health.

Conclusion

This study sought to answer calls for research on health promotion in the workplace (HHS, 2010b; Kelloway & Barling, 2010) and to amend the few studies currently published investigating leaders' health behaviors. By first forming a strong foundation of knowledge regarding basic relationships amongst health behaviors, feelings of well-being and leaders' work experience and performance, we can begin to move

towards a more advanced understanding of how we can best promote the health of employees and leaders while simultaneously improving the abilities and performance of those leading and following. Though this study suggests the relationship between a leader's health and his/her leadership behaviors is small, at best, considerable attention still ought to be paid to the impact the health of leaders has on the workplace and workforce. Given the focal topics, the variety of perspectives, relevant constructs and means of measurement are numerous and well-deserving of continued investigations.

Beyond this, this study contributes uniquely and significantly to the literature in at least three prominent ways. First, it highlights the numerous avenues future research needs to pursue for a more comprehensive and thorough understanding of how health and lifestyle decisions impact organizational leadership. These are not trivial research needs as leaders not only must perform their own job duties, but also direct and influence the jobs and workplace experiences of other employees. At upper leadership levels, leaders also establish the culture, climate, and sustainability of organizations. In short, an organization's health is only as good as the health of its leadership. Reviewing this study in the context of other theoretical and empirical works prompts needed discussion regarding a variety of methodological, measurement, and theoretical issues related to the relationships amongst health behaviors and leadership. Studies linking health behaviors and lifestyle factors to workplace management and leadership are at an infant state. The first step, which this study aims to address, is to empirically identify basic relationships amongst relevant variables and, in doing so, also make note of methodological and theoretical issues that are ripe for further inquiry.

Secondly, this study contributes to the literature by first reviewing the literature available across a variety of disciplines that do not consistently communicate with each

other, and by looking at the relationships amongst health behaviors in an applied context. Notably, this study finds that some, though not all, health behaviors are important for well-being and health. As suggested earlier in the discussion, it may be that a longer time period is needed to see the effects of tobacco, alcohol and diet on individual's health. It may also be, however, that the relationships reported in the current study are accurate appraisals of the connectedness of health behaviors and well-being for individuals in early and middle adulthood. Given that tobacco use, excessive alcohol consumption, and poor diet take time to affect people in an explicit and debilitating manner, it is likely that earlier in an individual's career, these are less likely to bear significant relationships with their perceived well-being. This study notably establishes that some health behaviors, including physical activity and sleep duration and quality, bear direct and significant relationships with well-being. Understanding what does directly relate to well-being (e.g. physical activity, sleep), as measured in this study, is important. Equally important is understanding what may not be related (e.g. tobacco, alcohol, diet) to measures of well-being as this prompts discussion and future inquiry.

Lastly, this study contributes to leadership scholarship by demonstrating what leadership styles relate to subordinates' perceptions of confidence, trust, and loyalty in their leader, in addition to the quality of the supervisor-subordinate exchange relationship. The relationship trends reported in this study add further evidence for an active/passive distinction with regards to how leaders approach their role and interactions with subordinates. Future research ought to investigate how and why these relationships and trends exist.

In sum, this study established basic, though certainly not trivial, relationships amongst the health behaviors and well-being of supervisors and subordinate-perceptions

of their supervisors' leadership behaviors and relationship quality. The relationships amongst physical activity, sleep and well-being are noteworthy as are the relationships relating active and passive leadership behaviors with the relationship quality of supervisors and their subordinates. Future research should continue to explore and establish the impact of health and lifestyle factors for the workplace, and specifically with regard to leaders and the leadership roles they fulfill.

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Appendices

Appendix A: IRB Approval Form



DIVISION OF RESEARCH INTEGRITY AND COMPLIANCE

Institutional Review Boards, FWA No. 00001669

12901 Bruce B. Downs Blvd. MDC035 • Tampa, FL 33613-4799

(813) 974-5638 • FAX (813) 974-5618

April 13, 2012

Kristin Saboe
 Psychology
 4202 E. Fowler Ave, PCD 4118G

RE: **Expedited Approval** for Initial Review
 IRB#: Pro00007607
 Title: Fit to Lead? Supervisors' Health Behaviors, Well-Being and Leadership Behaviors

Dear Kristin Saboe:

On 4/13/2012 the Institutional Review Board (IRB) reviewed and **APPROVED** the above referenced protocol. Please note that your approval for this study will expire on 4/13/2013.

Approved Items:
 Protocol Document(s):

Saboe Dissertation proposal committee approved	3/26/2012 2:01 PM	0.02
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Consent/Assent Documents:

Name	Modified	Version
Waiver of Informed Consent Documentation granted for both Adult ICF's: 1) Employee and 2) Supervisor		

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your study qualifies for a waiver of the requirements for the documentation of informed consent as outlined in the federal regulations at 45 CFR 46.117 (c): An IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects if it finds either: (1) That the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern; or (2) That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,



John Schinka, PhD, Chairperson
USF Institutional Review Board

Cc: Various Menzel, CCRP
USF IRB Professional Staff

Appendix B: Supervisor Survey Items

Instructions: Please respond to the following questions regarding your typical health behaviors as truthfully and accurately as possible. We are interested in your behaviors during a normal 7-day period.

If you consider the week prior representative of a normal week for you, respond to the following questions according to your experiences from the previous 7 days. Please keep in mind that every week will be variable for many reasons—we define an “abnormal” week as one that represents a *significant* departure from the usual routine, such as being on vacation, ill for the entire week, or unable to work due to extenuating circumstances.

If last week was *notably abnormal* (e.g. you were sick, you were on vacation and did not go to work, you were traveling to another country and you do not normally travel for work), think of your routines and behaviors over the previous month. Over the past 4 weeks, think of a week that was a typical week—for example, if the previous week you were on vacation, refer to the week previous if that was a “typical” work week for you. Focusing on a typical week from the previous 4 weeks (month), please respond to questions about your health behaviors to the best of your knowledge.

1. Was last week a *normal* week for you? Specifically, we are interested to know whether you will be referencing the previous week when responding to the questions that follow. Answer options: “yes, I will be reporting my behaviors from the previous week”
“no, the previous week was not a normal for me”

2. If the previous week was not typical for you, which of the following were not typical of your weekly routine last week?

What you ate?

The amount of sleep you received?

How much physical activity you received?

How much alcohol you consumed?

How often you used tobacco products?

Response anchors: “yes”, “no”

1a. Follow-up question: If you responded “no”, please describe why in the space below. (open response)

Supervisor Self-Report Survey**Vitality (SF-36 General Well-Being Subscale)**

-For the following 4 items, participants will use response anchors: None of the time, a little of the time, some of the time, a good bit of the time, most of the time, all of the time

“Over the previous week...”

1. Did you feel full of pep?
2. Did you have a lot of energy?
3. Did you feel worn out? (R)
4. Did you feel tired? (R)

General Health (SF-36 General Well-Being Subscale)

1. In general, would you say your health is:

-Response anchors: Poor, Fair, Good, Very Good, Excellent

-For the following 4 items, participants will use response anchors:

Definitely False, Mostly False, Don't Know, Mostly True, Definitely True

“Over the past week...”

2. I seem to get sick a little easier than other people. (R)
3. I am as healthy as anybody I know.
4. I expect my health to get worse. (R)
5. My health is excellent.

Sleep

Reflecting on the previous week...

1. How many hours of sleep, on average, did you receive each night? (open-ended)

2. Overall, you would rate the quality of sleep you received as:

-Response anchors: Poor, Fair, Good, Very Good, Excellent

Alcohol/Tobacco Use

Reflecting on your behaviors during the previous week, did you...

1. Consume alcohol?

-Response anchors: “yes” or “no”

1a. If so, in an average week, how many drinks did you have on each day? Keep in mind that 1 drink = 12 oz. [bottle] of beer = 4-5 oz. [glass] of wine = 1.5oz [shot] of liquor.

Monday:

Tuesday:

Wednesday:

Thursday:

Friday:

Saturday:

Sunday:

2. Use a tobacco product (e.g. cigarettes, chewing tobacco, cigars)? Keep in mind that smoking any part of a tobacco product, including even just a puff, counts as using a tobacco product.

-Response anchors: “yes” or “no”

2a. If so, how many times was a tobacco product used each day (1 cigarette = 1 time)?

Monday:

Tuesday:

Wednesday:

Thursday:

Friday:

Saturday:

Sunday:

Food Intake

-Response anchors: “none”, “1-2”, “3-4”, “5-6”, “7-8”, “9 or more”

-Response anchors: “NA”, “just a taste”, “small”, “average”, “large”, “extra large”

Reflecting on your diet over the past week, report the frequency with which you consumed each of the following in a typical 24-hour period. If you did not eat the listed food, mark “none”. When you do report consuming the listed food, please indicate the average portion size you consumed (e.g., if you report eating 1 apple of fruit for the day, report eating an average sized portion).

Dairy Products:

1. Skim, 2% or low-fat milk products (e.g. skim milk, low-fat cheese, yogurt)
2. Partial or full-fat milk products, (e.g. regular or whole milk, cream cheese)

Fruits and Vegetables:

3. Fruits (includes whole, fresh, frozen and canned fruit; do NOT include fruit juice)
4. Vegetables

Proteins (meat, beans, nuts):

5. Fast food & breakfast meats (e.g., hamburger, bacon, sausage, chorizo)
6. Fish, shellfish, and other seafood
7. Beans & nuts (e.g., black beans, chickpeas, peanuts, almonds, seeds)

Grains:

8. High fiber cereal (e.g., oatmeal, grits, shredded wheat, Raisin Bran)
9. Cereal (those that are not categorized as “high fiber”)
10. Whole-grain pasta or dark bread (e.g. whole wheat, rye, pumpernickel, bran)

Other:

11. Fried foods (e.g. potato chips, French fries, fried chicken or seafood, egg rolls)
12. Desserts & pastries (e.g. donuts, croissants, coffee cake, cookies, tarts)

Physical Activity (Godin Leisure Time Exercise Questionnaire; Godin & Shephard, 1985)

1. In a typical 24-hour period during the previous week, about how long (minutes) did you engage in the following kinds of exercise during your *free time*?

- a.) Strenuous exercise (heart beats rapidly)
(i.e. running, jogging, hockey, football, soccer, basketball, cross country skiing, vigorous swimming, vigorous long distance biking)
- b.) Moderate exercise (not exhausting)
(i.e. fast walking, baseball, tennis, easy bicycling, volleyball, easy swimming, downhill skiing, popular and folk dancing, playing wii sports, Kinect or other physically-engaging interactive video gaming system)
- c.) Mild exercise (minimal effort)
(i.e. fishing, archery, stretching, golf, snowmobiling, easy walking)

Covariates

Self-Esteem (Rosenberg, 1965)

1. On the whole, I am satisfied with myself
2. At times, I think I am no good at all. (R)
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of. (R)
6. I certainly feel useless at times. (R)
7. I feel that I am a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself. (R)
9. All in all, I am inclined to feel that I am a failure. (R)
10. I take a positive attitude toward myself.

Positive Affect (Watson & Clark, 1994; PANAS)

Instructions: This scale consists of a number of words and phrases that describe feelings and emotions. Read each item and indicate *to what extent you have felt this way during the past week*.

Response anchors: 1 = “very slightly or not at all”, 2 = “a little”, 3 = “moderately”, 4 = “quite a bit”, 5 = “extremely”

1. Active
2. Alert
3. Attentive
4. Determined
5. Enthusiastic
6. Excited
7. Inspired
8. Interested
9. Proud
10. Strong

Demographics: Supervisor

1. Gender: ___ Female ___ Male 2. Age: I am ___ years old.
3. Ethnicity: ___ White / Caucasian ___ Black / African ___ Hispanic / Latino(a)
 ___ Asian / Pacific ___ American ___ Other
 ___ Islander ___ Native American ___ Prefer not to answer

4. Highest level of education completed: ___ High School
 ___ Associates Degree
 ___ Bachelors Degree
 ___ Graduate School
 Check all that apply:
 ___ Master's Degree
 ___ MBA
 ___ J.D.
 ___ M.D./D.O.
 ___ Ph.D.

4. a. height: ___ feet ___ b. weight: _____ lbs.
Biometrics: inches

5. When did you begin working for your current company? (Month/Year) ___ / ___

6. When did you begin working in your current position? (Month/Year) ___ / ___

- a. I am employed: ___ Part-time ___ Full-time b. ___ Hours worked per week
- c. I work in a (check one): ___ Educational Industry/Academia (teacher, professor, researcher)
 ___ Professional industry (e.g., accounting, law)
 ___ Manufacturing industry (e.g., construction, assembly line)
 ___ Retail/service industry (e.g., restaurant, cashier)
 ___ Technical industry (e.g., mechanics, computer programming)
 ___ Government agency (e.g., military, City Hall)
 ___ Other; please specify: _____

Appendix C: Subordinate Survey Items

Confidence in Leadership (Ivey & Kline, 2010)

-Response anchors: 1 = “strongly disagree”, 5 = “strongly agree”

1. I am satisfied with my supervisor.
2. My supervisor is effective.
3. My supervisor performs his/her job well.
4. I have confidence in my supervisor.

Trust in/Loyalty to the Leader (Podsakoff, et al., 1990)

-Response anchors: 1 = “strongly disagree”, 5 = “strongly agree”

1. I feel quite confident that my supervisor will always try to treat me fairly.
2. My supervisor would never try to gain an advantage by deceiving workers.
3. I have complete faith in the integrity of my supervisor.
4. I feel a strong sense of loyalty to my supervisor.
5. I would support my supervisor in almost any emergency.
6. I have a divided sense of loyalty toward my supervisor. (R)

Items 1-3: fairness subscale; Items 4-6: loyalty subscale

Leader-Member Exchange (Graen, Novak, & Summercamp, 1982)

-Response anchors: 1 = “strongly disagree”, 5 = “strongly agree”

1. I always know where I stand with my immediate supervisor.
2. I feel that my immediate supervisor completely understand my problems and needs.
3. I feel that my immediate supervisor fully recognizes my potential.
4. Regardless of how much formal authority my immediate supervisor has built into his or her positions, s/he would not hesitate to use her/his power to help me solve problems in my work.
5. Again, regardless of the amount of formal authority my immediate supervisor has, I can count on him/her to ‘bail me out’ at his/her expense when I really need it.
6. I have enough confidence in my immediate supervisor that I would defend and justify her/his decisions if s/he were not present to do so.
7. I would characterize my working relationship with my immediate supervisor as very effective.

Leader Behaviors

Using the scale provided below, please indicate the extent to which each of the following describes the behaviors displayed at work by your immediate supervisor:

-Response anchors:

1 = “strongly disagree, 2 = “somewhat disagree”, 3 = “neither agree nor disagree”, 4 = “somewhat agree”, 5 = “strongly agree”

Passive Leadership Behaviors

Consideration Leadership (Schriesheim & Stogdill, 1975)

1. My supervisor lets group members know what is expected of them.
2. My supervisor tries out his/her ideas with the group.
3. My supervisor does little things to make it pleasant to be a member of the group.
4. My supervisor refuses to explain his/her actions. (R)
5. My supervisor treats all group members as his/her equals.
6. My supervisor is willing to make changes.
7. My supervisor is friendly and approachable.
8. My supervisor puts suggestions made by the group into operation.
9. My supervisor gives advance notice of changes.
10. My supervisor looks out for the personal welfare of group members.

Transformational Leadership (Carless, Wearing, & Mann, 2000)

1. My supervisor communicates a clear and positive vision of the future.
2. My supervisor treats staff as individuals, supports and encourages their development.
3. My supervisor gives encouragement and recognition to staff.
4. My supervisor fosters trust, involvement and cooperation among team members.
5. My supervisor encourages thinking about problems in new ways and questions assumptions.
6. My supervisor is clear about his/her values and practices what s/he preaches.
7. My supervisor instills pride and respect in others and inspires me by being highly competent.

Transactional (Podsakoff et al., 1990)

1. My supervisor always gives me positive feedback when I perform well.
2. My supervisor gives me special recognition when my work is very good.
3. My supervisor commends me when I do a better than average job.
4. My supervisor personally compliments me when I do outstanding work.
5. My supervisor frequently does not acknowledge my good performance. ®

Initiating Structure (Schriesheim & Stogdill, 1975)

1. My supervisor makes his/her attitudes clear to the group.
2. My supervisor assigns group members to particular tasks.
3. My supervisor schedules the work to be done.
4. My supervisor maintains definite standards of performance.
5. My supervisor encourages the use of uniform procedures.
6. My supervisor asks that groups members follow standard rules and regulations.
7. My supervisor lets group members know what is expected of them.
8. My supervisor decides what shall be done and how it shall be done.
9. My supervisor makes sure that his part in the group is understood by the group members.
10. My supervisor tries out his/her ideas with the group.

Active Leadership Behaviors**Management by Exception (passive)** (Bass, 1985 book pp. 212 reported in Bycio, Hackett, & Allen, 1995)

1. As long as the old ways work, my supervisor is satisfied with my performance.
2. My supervisor is content to let me continue doing my job in the same way as always.
3. As long as things are going all right, my supervisor does not try to change anything.
4. My supervisor asks no more of me than what is absolutely essential to get the work done.
5. It is all right if I take initiatives but my supervisor does not encourage me to do so.
6. My supervisor only tells me what I have to know to do my job.

Laissez-Faire (reward omission) (Hinkin & Schriesheim, 2008)

1. I often perform well in my job and still receive no praise from my manager.
2. When I perform well, my supervisor usually does nothing.
3. My good performance often goes unacknowledged by my supervisor.
4. I do not often get praised by my supervisor when I perform well.

Laissez-Faire (punishment omission) (Hinkin & Schriesheim, 2008)

8. My supervisor gives me no feedback when I perform poorly.
9. When I perform poorly in my job I receive no criticism from my supervisor.
10. When I perform poorly my supervisor does nothing.
11. My poor performance often gets no response from my supervisor.

Demographics: Subordinate

1. Gender: ___ Female ___ Male 2. Age: I am ___ years old.
3. Ethnicity: ___ White / Caucasian ___ Black / African ___ Hispanic / Latino(a)
 ___ Asian / Pacific ___ American ___ Other
 ___ Islander ___ Native American ___ Prefer not to answer
4. Highest level of education completed:
 ___ High School
 ___ Associates Degree
 ___ Bachelors Degree
 ___ Graduate School
 Check all that apply:
 ___ Master's Degree
 ___ MBA
 ___ J.D.
 ___ M.D./D.O.
 ___ Ph.D.
5. When did you begin working for your current company? (Month/Year) ___ / ___
6. When did you begin working for/with your current supervisor (supervisor who is also completing this survey)? (Month/Year) ___ / ___
7. When did you begin working in your current position? (Month/Year) ___ / ___
- a. I am employed: ___ Part-time ___ Full-time b. ___ Hours worked per week
- c. I work in a (check one):
 ___ Educational Industry/Academia (teacher, professor, researcher)
 ___ Professional industry (e.g., accounting, law)
 ___ Manufacturing industry (e.g., construction, assembly line)
 ___ Retail/service industry (e.g., restaurant, cashier)
 ___ Technical industry (e.g., mechanics, computer programming)
 ___ Government agency (e.g., military, City Hall)
 ___ Other; please specify: _____