An Examination of Psychological Climate Linking Mechanisms Across the Strategic Priorities of Health and Stress

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AN EXAMINATION OF PSYCHOLOGICAL CLIMATE LINKING MECHANISMS ACROSS THE STRATEGIC PRIORITIES OF HEALTH AND STRESS

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Industrial/Organizational Psychology

by
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December 2015

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ABSTRACT

Given that employee health and well-being represent a significant source of financial costs for organizations, this dissertation seeks to address some of the pathways through which organizational efforts to improve physical and mental health may operate. This study drew from a model of safety climate (Neal & Griffin, 2000) to propose that psychological climate exerts influence on employee health and well-being through the joint moderators of knowledge/motivation and behaviors. The model also extended beyond the typical climate linking mechanisms to include moderators both individual (behavioral activation & behavioral inhibition systems) and contextual (workplace physical exposure). Using a two-wave prospective design with 564 matched individuals the hypotheses are tested. The results were primarily supportive of the overall model with some key differences in the functioning of health motivation and emotion-focused coping. Turning to the moderating hypotheses, Behavioral Activation System (BAS) did moderate some of the hypothesized relationships within health climate, but not in the expected way, while Behavioral Inhibition System (BIS) only moderated one of the four hypothesized paths. Additionally, the moderating effect of workplace physical exposure was tested on the relationship between psychological health climate and health knowledge/motivation although its effect was non-significant. Turning to the stress model, BAS and BIS were not significant moderators of any of the hypothesized relationships. In conclusion, this research found general support for the application of the safety climate framework applied to health and stress reduction climate. Lastly, there was mixed support found for moderators of this relationship.
DEDICATION

This is dedicated to my mother, father, and grandmother who have fully supported me during my extended college education.
ACKNOWLEDGMENTS

This research was funded in part by the USF Sunshine Education and Research Center Grant # 2015000093. I also want to thank my wife who helped support me both financially and emotionally through this difficult path. I would also like to thank my advisor Robert Sinclair for his advice and insight on this project. I am finally getting to a point where I am internalizing your research knowledge. Lastly, I would like to thank my committee for their time and input that went into the creation of this study. Go Tigers!
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CHAPTER ONE
INTRODUCTION

This dissertation seeks to understand some of the main forms of employee well-being in the workplace; namely health and stress. In the United States, 73.1% of men and 60.2% of women are currently considered overweight or obese (Go et al., 2013). This and other trends have led to a current rise in healthcare costs that is unprecedented. According to the 2013 Kaiser Family Foundation report, the average employer contribution to health insurance for each worker has risen 80% over the last ten years (from $6,657 in 2003 to $11,786 in 2013). Additionally, with the passage of the Affordable Care Act, a so called “Cadillac tax” of 40% will be excised if an individuals or families cost goes beyond a specified level to be paid by the insurer, which has the potential to cost employers millions (Public Law 111-148).

Beyond employee physical health, mental health is also a concern that many organizations are facing. It is estimated that currently about 25% of the U.S. population and nearly 50% during their lifetime will develop a mental illness. Additionally, the economic burden in the U.S. for treating mental illness is estimated to be $300 billion in the year 2002 (CDC, 2011).

Broadly speaking, this dissertation is concerned with promoting and investigating what some have called a “healthy organization” (Sauter, Murphy, & Glanz, 1990; Murphy & Cooper, 2000; Wilson, Dejoy, Vandenberg, Richardson, & McGrath, 2004). Interestingly enough, early conceptions of a “healthy organization”
had nothing to do with the health of the worker, but rather focused on organizational effectiveness (Hofman & Tetrick, 2003). Since then, healthy organizations are conceptualized in terms of a culture of health that supports both mental and physical well-being of employees, as well as productivity and organizational effectiveness (Murphy, 1998). Although there has been some theoretical development along the lines of what constitutes a healthy organization, there is still a great deal lacking in terms of operationalizing measurement of a healthy organization. Beyond the theoretical development (Hofman & Tetrick, 2003), the strongest attempt at measuring a healthy organization was conducted by Wilson et al., (2004). Wilson and colleagues proposed an integrative model of healthy organizations as defined by organizational attributes, climate, job design, and job future. Although this study provided initial evidence of the relationship between organizational perceptions and individual health, it lacked the explanatory mechanisms by which these perceptions were linked to the employee’s health. So while this dissertation considers employee perceptions of the work environment (i.e., climate) as the antecedent of employee well-being, special attention is paid to the mechanisms through which it exerts its effect.

Beyond conceptualizations of “healthy organizations”, the social-ecological systems perspective (Stokols, 1996) is incorporated into the theoretical framework used in the present study. This framework reaches across disciplines to include the interaction between individuals and the social and physical environment in connection with important employee outcomes. There are four core principles of the social-ecological approach that differentiate it from other approaches as
discussed by Stokols, Lejano, and Hipp (2013). The first is the emphasis on the multidimensional structure of human environments. For instance, environments can be characterized by their objective or subjective qualities. An example of this could be the objective structural hierarchy of an organization, while a subjective quality is an employee’s perception of the hierarchy. Second, the social-ecological perspective attempts to incorporate different levels of analyses. Essentially, this perspective strives to understand the contextual nature of the individual within their local and organizational settings. Third, social-ecology draws upon key concepts and assumptions from systems theory such as interdependence, homeostasis, and negative feedback to understand the interrelationships among people and their surroundings (Emery, 1969). Lastly, the social-ecological frame emphasizes a transdisciplinary action research orientation in which diverse knowledge is brought together for the purpose of better understanding and ultimately improving the resilience and sustainability of people-environment systems (Stokols, 2006). This dissertation attempts to accomplish this by taking a holistic view of well-being in the workplace and studying the drivers, mediators, and moderators of this relationship.

This dissertation is also in line with the Total Worker Health™ (TWH) movement that the National Institute for Occupational Safety and Health (NIOSH) launched in 2011. The basis of TWH is a systematic and organizational linkage of all departments related to employee health (e.g., safety, group health and disability, workers compensation) to form an integrated whole with the unified goal of protecting and promoting the total safety, health, and well-being of employees.
(Schill & Chosewood, 2013). The first goal of TWH is protecting worker safety and health through programs such as encouraging safe equipment use and controlling exposure to workplace hazards. In this study, although workplace safety is not analyzed explicitly, it is used as a theoretical basis for much of this work. The second major goal of TWH is improving employee physical health, which has become a major concern as both the cost of health insurance rises and the realization that many of these costs can be contained through preventative measures (e.g., proper diet and exercise). Within this dissertation, physical health is analyzed through the lens of psychological health climate and its effect on diet and exercise, as well as body mass index. The last major goal of TWH is promoting worker well-being within the workplace, which covers a wide range of topics that all fall under the general purview of helping employees realize their optimal functioning at work. Within this study, worker well-being is studied in the context of psychological stress reduction climate and its hypothesized link to coping behaviors and improved psychological health.

One striking similarity amongst the three theoretical approaches used with this study is the focus on an integrative approach to improving employee health. It can be argued that some of society's greatest challenges necessitate this approach. For example, an integrative approach for cancer treatment involves traditional medicine combined with support groups, nutrition counseling, and activities like Yoga, Tai Chi, or meditation. Integrative approaches are steadily gaining popularity, with some of the largest cancer treatment centers embracing this approach (Cancer Treatment Centers of America, 2015). This dissertation seeks to follow an
integrative approach by understanding the multitude of influences that affect employee well-being in the workplace, with a distinct focus on the mechanisms by which they affect worker well-being.
CHAPTER TWO
STUDY OVERVIEW

This chapter provides a general overview of the constructs analyzed within this dissertation. It begins with a discussion of climate and then its linking mechanisms and moves to moderators of this climate-outcome relationship. Beginning with climate, there have been multiple conceptualizations within the literature that have pervaded for quite some time (James & Jones, 1974). Recent conceptualizations generally follow that climate refers to employee perceptions about specific sets of policies, practices, and procedures, meaning that organizations have multiple “strategic climates” for attributes such as innovation, service, and quality (Schneider, Ehrhart, & Macey, 2011). Additionally, organizations can have competing climates (productivity vs. safety) or complementary climates (health & safety). Beyond the recent conceptualizations, it may be useful to consider some of the past research in order to understand how climate has grown throughout the years to arrive where it is today.

One past popular definition of climate conceptualized climate as a set of characteristics that describe an organization and “a) distinguish the organization from other organizations, b) are relatively enduring over time, and c) influence the behavior of people in the organization” (Forehand & Von Haller, 1964, p. 362). Forehand and Von Haller’s (1964) definition of climate, while broad, offers some unique insights into the climate process. The researchers also postulated that the effect of organizational climate on individual behavior could be studied in terms of
the definition of stimuli presented to individuals members, the constraints placed upon the individual’s freedom of choice regarding behavior, and the reward or punishment process. In terms of measurement, Forehand and Von Haller (1964) argued that individual perceptions and objective indices such as structure were appropriate measurement tools.

Campbell, Dunnette, Lawler, and Weick (1970) defined climate as a set of attributes specific to a particular organization that may be induced from the way the organization deals with its members and environment. For the individual member within an organization, Campbell et al., (1970) argued that climate takes the form of a “set of attitudes and expectancies, which describe the organization in terms of both static characteristics (autonomy) and behavior-outcome and outcome-outcome contingencies” (p. 390). This definition stresses the strong role of individual perceptions of the organization and that these perceptions are what govern employee behavior, while climate itself is viewed as a situational variable or organizational main effect.

Finally, in what many would consider the most aligned with current thinking, Pritchard and Karasick (1973) defined climate as “a relatively enduring quality of an organization’s internal environment distinguishing it from other organizations; a) with results from the behavior and policies of its members, especially top management, b) which is perceived by members of the organization; c) acts as a source of pressure for directing activity” (p. 126). Although this definition may be seen as broad, it has important implications for how researchers measured and conceptualized climate for the next 40 years.
As one can see, these definitions differ in regards to whether climate is conceptualized as a perceptual or structural phenomenon. This led early researchers to conclude that the perceptual measurement of climate was born out of methodological convenience rather than deliberate intention (Guion, 1973). In addition, Guion (1973) concluded that if climate refers to the individual's perceptions then organizational climate is essentially synonymous with employee attitudes. Another related critique of the early climate work was that although researchers were claiming that climate was a situational characteristic of the workplace environment, the individual-level measurement of this construct led it to be inherently influenced by individual bias (James & Jones, 1974). In response to these critiques, the climate research has been split between organizational climate, which is conceptualized as a group-level phenomenon that is measured by aggregating individual responses to the group, team, or organizational level and psychological climate, which measures climate at the individual level. Since the debate has mostly ended on the measurement issue, much of the research on organizational climate has turned to focus on methodological issues rather than theoretical or conceptual issues (Zohar, 2010).

In a qualitative review of the safety climate literature, Zohar (2010) provided unique insights into how the field has grown and changed. Zohar (2010) contends that in order to distinguish climate from other organizational perceptions it must be focused on the relative priorities within the workplace. Although this can be challenging due to the complexity of the organizational environment, climate perceptions should relate to the relative priority of these elements rather than to
the consideration of individual elements in isolation. From an employee standpoint, it is the overall pattern and signals sent by the organizational web of rules and policies across competing domains that ultimately must be sorted out to discern what role behavior is expected, rewarded, and supported. Zohar (2010) argues that as a field, safety climate should be measured as “procedures-as-pattern” rather than viewing patterns in isolation. Thus understanding and measuring climate should draw distinctions between the specific priority and other possibly contradicting forces within the organization.

The second attribute of safety climate that Zohar (2010) discusses is using climate as a measure of alignment between espoused and enacted priorities. This refers to the extent of convergence or misalignment between words and deeds on behalf of managers at different levels of the organization (Simmons, 2002). What this is really getting at is whether, despite the espousal of safety as a high priority issue, safety procedures are compromised under competing operational demands. This alignment is crucial because it is only the enacted policies that provide reliable information regarding the kinds of behavior likely to be rewarded and supported (Zohar, 2003). This distinction between espoused and enacted values is of key adaptive significance because only enacted values inform employee behavior-outcome expectancies.

The third attribute of safety climate according to Zohar (2010) concerns the internal consistencies among relevant policies, procedures, and practices. While the previous attribute referred to discrepancies between leaders’ words and actions, this attribute refers to potential inconsistencies between organizational policies,
procedures, and practices. Although some view organizations as rational systems (Blau & Scott, 1962), other views include viewing organizations as ‘loosely coupled systems’ (Weick, 1979), which suggests that internal consistency between organizational elements and processes may vary considerably. In other words, organizations can have rules and policies that seem logically inconsistent or mutually exclusive. Inconsistencies across the organizational hierarchy are likely to arise from supervisory discretion in policy implementation. Supervisory discretion arises from a number of sources such as the presence of competing operational demands and the fact that procedures rarely cover all situations. As a member of an organization, an employee receives signals from both individual units and the organization as a whole. This results in two different perceptions of climate, one of the organization and the other as the unit and these perceptions may or may not be consistent (Zohar & Luria, 2005).

In contrast to research on organizational climate, psychological climate has worked to develop explanatory mechanisms for how climate affects individuals. Individual climate perceptions are referred to as psychological climate and are used to refer to the meanings that people impute to their jobs, co-workers, leaders, and treatment (James & Jones, 1974; James et al., 2008). Researchers also often measure climate at the individual-level based on the assumption that unit-level climate measures influence behavior at least in part through their influence on individuals’ priorities (Jones & James, 1979). A counterargument to Guion’s (1976) critique about climate simply being another job attitude, would be that even at the individual level, climate measures go beyond a simple evaluation of an aspect of the job. Rather
climate measures assess perceptions about the relative priorities within the workplace (Zohar, 2010) rather than attitudes towards the job. In addition, beyond assessing the relative priority of a specific focus, climate also attempts to measure alignment between espoused values and priorities against actual ones, which is quite different than traditional job attitude measures.

At its core, psychological climate is a construct used for conceptualizing the way people experience and describe their work settings (Schneider, Ehrhart, & Macey, 2013). Much of the research on understanding individual’s perceptions of climate has focused on meaning, in that climate is thought to affect outcomes through the role of the workplace in shaping meaning for individuals. The attribution of meaning to external stimuli refers to the process of using previously stored mental representations (i.e., schemas) to interpret (or make sense of) sensory information (Shaver, 1987).

Perceptions of climate have also been conceptualized as partial functions of personal value systems (James et al., 2008). A personal value is defined as something that a person wants or seeks to obtain because it is deemed conducive to one’s welfare (Locke, 1976). Personal values serve as latent indicators of what it is about the environment that is significant to individuals because of personal values ability to determine ones welfare. Consequently, personal values produce the schemas employed to cognitively appraise the work environment attributes in terms of their significance to the individual and thus serve as the basis for making perceptions about the external environment. While organizational climate devalues the role of individual’s biases in favor of representations of the group or team,
Psychological climate embraces these biases and asserts that these serve the foundational role of creating meaning.

**Mechanisms linking climate to individual outcomes**

In terms of organizing an overall model of the relationship between climate and important outcomes (e.g., safety, health), it may be wise to consider the role of both proximal and distal predictors. Specifically, although there may be a low overall relationship between safety climate and actual accidents (Clarke, 2006; Christian et al., 2009), at least part of this relationship may be mediated by the more proximal predictors of safety outcomes (i.e., safety performance or behaviors). By incorporating these linking mechanisms, it is possible to strengthen theories regarding the relationship between climate and important organizational outcomes. Doing so may also increase the relationships between the variables, which informs practical applications and the knowledge in this area.

The original climate linking mechanisms to organizational outcomes were based on theories of individual performance (Borman & Motowidlo, 1993) and came out of the safety climate literature (Neal & Griffin, 2000). The general theory asserts a link between perceptions of the work environment and individual behavior within that environment (Neal & Griffin, 2000). In addition, it is proposed that any organizational outcome (i.e., safety accidents) is related to environmental perceptions through each employee’s behavior. If the goal is to understand the determinants of individual behavior, more research into individual performance helps provide these answers. In their seminal work, Campbell, McCloy, Oppler, and
Sager (1993) described three main drivers of individual performance: knowledge, skill, and motivation. Therefore, when investigating any relationship between environmental perceptions and individual behavior it is important to also consider these individual characteristics. This is not to overshadow the importance of climate's role in predicting employee behavior; rather, it is acknowledging that the relationship between climate and behavior is mediated, at least in part, by the individual's motivation and knowledge. As previously discussed, individuals attribute meaning and value to features of their work environment (James & James, 1989) and this process is thought to influence motivation and subsequently performance. In addition, research has shown that organizational climate can influence knowledge by increasing participation in activities such as training (Morrison, Upton, & Cordery, 1997). What this research shows is that climate should be treated as an antecedent to behavior, which is mediated by an individual's motivation toward and knowledge about that specific behavior.

It should also be noted that although climate is often conceptualized as an antecedent of outcomes, some research suggests that there may be a reciprocal relationship between climate and outcomes (Beus, Payne, Bergman, & Arthur, 2010). In terms of workplace safety, one example is that increased levels of accidents influence perceptions that the climate is negative towards safety because these accidents serve as indicators that the employees' workplace is unsafe. In addition, the same could be true of the relationship of climate with knowledge and motivation. For instance, it could be that having the requisite knowledge and motivation would in turn create a positive climate toward that specific priority. If all
employees are thoroughly trained in workplace safety and are motivated to perform
their jobs safely, safety climate may simply be an outcome rather than an
antecedent. Therefore, it is prudent that researchers took a closer look at the
proposed linking mechanisms to see how they operate across different climate foci
over time.

**Proposed moderators of the linking mechanisms**

While understanding the linking mechanisms that connect psychological
climate to organizational outcomes is crucial, it is also important to consider the
way these relationships may change when a third-variable is included. It is likely
that these proposed mechanisms operate differently in differing contexts and with
differing individuals. As the goal of this study is to examine this phenomena using a
socio-ecological perspective, incorporating differing environmental and individual
differences helps to advance this objective. Lastly, although there may be multiple
proposed areas within the general model where moderators may have an influence,
the approach taken within this dissertation seeks to understand the crucial
relationship between employee’s knowledge and motivation and their behavior.
This link has much pragmatic value as organizations can work to increase
knowledge and even motivation, but there is often no way to directly force behavior.
Therefore, understanding this crucial link has important implications for
researchers and practitioners alike.
Approach/avoidance disposition

Following the social-ecological systems perspective, this study sought to investigate the myriad of causes that influence employee health and well-being. Therefore, this study also sought to understand the effect of personality on the relationship between psychological climate and employee behaviors. It has been posited that there are two main responses to stress: that of fight or flight, which has also been fashioned into two related dispositional systems (Freud, 1915/1957; Carver & White, 1994). These are two basic orientations toward potential stressful events and two fundamental patterns of coping with stress and trauma (Roth & Cohen, 1986). These concepts represent two broad patterns of complex cognitive and emotional activity that are oriented either toward or away from a potential threat and represent a useful framework for evaluating individual behavior. Both of these reactions may be effective given the situation, but research has found individuals tend to prefer one response rather than the other (Roth et al., 1986). In addition, it is thought that these responses to stress or trauma represent two distinct motivational systems within the human body (Carver & White, 1994).

Gray (1972) was the first to draw a distinction between the two underlying general/dispositional motivation systems, an approach that was later refined for measurement by Carver and White (1994). The original dimensions were termed anxiety proneness and impulsivity by Gray (1972). One of the systems was thought to regulate aversive motivation while the other appetitive motivation (Gray, 1972). The aversive motivational system is now commonly referred to as the Behavioral Inhibition System (BIS) while the appetitive is known as the Behavioral Activation
System (BAS). The main difference between the two systems is the sensitivity to punishment and reward.

Carver and White (1994) describe the BIS as sensitive to signals of punishment, non-reward, and novelty and its function is to inhibit behavior that may lead to negative or painful outcomes. Gray (1972) also posited that BIS is responsible for the experience of negative feelings such as fear, anxiety, frustration, and sadness in response to environmental cues. Therefore individuals with higher levels of BIS should reflect greater proneness to anxiety, provided the person is exposed to the proper situational cues. Said another way, individuals who are high in BIS can be manifested as perceptual readiness and emotional reactivity to negative stimuli (Gray, 1982). This motivational system has been assessed with items such as “I want to avoid doing badly” (Elliot & McGregor, 2001).

BAS, on the other hand, is thought to be sensitive to signals of reward, non-punishment, and escape from punishment. Activity in this system is expected to cause a person to engage in behaviors toward goals. The underlying personality aspect of BAS should cause individuals to reflect greater proneness to engage in goal-directed behavior and to experience positive feelings when the person is exposed to cues of impending rewards. Gray (1972) also hypothesized that BAS is responsible for the experience of positive emotions such as hope, elation, and happiness. Additionally, it can be manifested as a perceptual readiness for and strong emotional responsiveness to positive stimuli (Gray, 1982). Additionally, BAS has been measured with items such as “I am striving to achieve my hopes and dreams” (Elliot & McGregor, 2001). Given that both of these systems are thought to
have their own neurological basis they are not thought to be mutually exclusive. On the contrary it is believed that individuals can have a mix of high BIS and BAS or low on both (Caver et al., 1994).

Although much of the research on BAS and BIS falls within the bounds of personality psychology and cognitive neuroscience (Diefendorff & Mehta, 2007), there has been some work within the Industrial/Organizational Psychology and Occupational Health Psychology investigating both BAS and BIS. For instance, research suggests that there is some overlap between BIS and neuroticism and BAS and extraversion (Larsen & Ketelaar, 1991). This research also implied a connection between BAS and BIS with positive and negative affect (respectively), which is in line with the previous conceptualizations by Gray (1972). Research has also focused on the relationship between BAS and BIS with organizational commitment. For instance, Herrbach (2006) found that while BAS was significantly related to affective commitment and organizational identification, BIS was associated with continuance commitment. Finally, although much of this research has highlighted the differences between BAS and BIS there is research that supports that notion that although they may motivate individuals in different ways the outcome may be the same. For instance, research by Diefendorff and Mehta (2007) found that both BAS and BIS were associated with workplace deviance. Their argument was that although these two motivational systems operate separately they both result in the same thing, increased activation. Additionally, Ferris et al. (2011) found evidence that approach (BAS) and avoidance (BIS) were mediators of the relationship between core self-
evaluations and organizational performance behaviors (role performance, OCBs, and CWBs) and were both negatively associated with the outcomes.

In the context of this study, both BIS and BAS are thought to be important in initiating behavior; albeit from two different motivational systems, where BIS draws from anxiety, BAS draws from positive feelings. This is important in the context of the current study because psychological climate may exert a norm on individuals to engage in certain behaviors but those employees with higher levels BAS or BIS will likely engage in those behaviors more often than those with lower levels of the underlying personality construct. This is because individuals will have a strong level of activation with differing sources of motivation, but achieving the same general behavior.
CHAPTER THREE
SAFETY CLIMATE

Although the previous discussion reviewed climate in a broad sense, recent research has focused more specifically on different climate priorities. Perhaps the most widely studied climate focus, which has proliferated over the past 35 years, is safety climate (Zohar, 2010). Many organizations have concerns about occupational safety and employees’ safety performance because of the substantial costs associated with workplace injuries. The Bureau of Labor Statistics (2014) recently reported that there were more than 4,400 fatal workplace injuries and 3 million workplace injuries and illnesses in the U.S. in 2013. According to the Liberty Mutual Workplace Safety Index (2013), U.S. workers’ compensation costs for the top 10-workplace injuries and illnesses amounted to more than $50 billion in 2011. Additionally, workplace injuries can incur psychological costs to employees (e.g., loss of morale) and damages to organizations’ reputation (Nahrgang, Morgeson, & Hofmann, 2008). Although this dissertation does not test any specific hypotheses concerning safety climate, it is important to introduce this research area since much of the climate research concerning stress and health has been built off of this topic.

The first study measuring safety climate was conducted by Zohar (1980), who developed a measure of safety climate of 20 different industrial organizations within Israel. The results were positive, such that the safety climate measure was found to be related to safety as assessed by trained safety raters. Safety climate is generally defined as employees’ perceptions of their organization’s policies,
procedures, and practices in regards to the value and importance placed on safety (Zohar, 1980; 2000). Following Zohar’s (1980) initial research, a large volume of occupational safety research has established safety climate as a robust leading indicator of safety performance and other safety outcomes (e.g., accidents and injuries). There are at least three meta-analyses supporting this relationship (Christian, Bradley, Wallace, & Burke, 2009; Clarke, 2006; Nahrgang et al., 2008).

Based on principles of social exchange (Neal & Griffin, 2000), safety climate researchers have argued that a positive safety climate encourages safe actions such that perceptions of safety climate have psychological utility in serving as a frame of reference for guiding appropriate and adaptive task behaviors (Zohar, 1980). Therefore, based on cues in the environment employees develop coherent sets of perceptions and expectations regarding behavior-outcome contingencies and behave accordingly (Dieterly & Schneider, 1974).

Early measurement (Zohar, 1980) included eight different subscales of safety climate, including constructs such as training programs, management attitudes, levels of risk, work pace, status of safety officer, and safe conduct on social status. Although all of these subscales (with the exception of social status) were found to be related to safety levels, the best predictors were management attitudes towards safety and perceptions regarding the relevance of safety in general production processes (Zohar, 1980). Interestingly, contemporary measurement of safety climate has focused almost exclusively on management attitudes toward safety, whether it is top-management or front-line supervisors (Zohar & Luria, 2005). In addition, the little research that has been conducted on safety climate interventions
has shown that changing the communication between supervisors and subordinates can significantly increase safety climate and reduce accidents (e.g., Zohar, 2002; Zohar & Polachek, 2014).

Based on the argument that safety performance acts in similar ways as other performance at work (Borman & Motowidlo, 1993), research suggests that there are two main types of safety performance (Neal & Griffin, 2000). Specifically, there is task-related safety performance or safety compliance, which reflects the core safety activities that need to be carried out by employees to maintain safe working conditions. The other is based on the idea of contextual performance, which reflects parts of the job that are often not part of a formal job description but are important for the health and functioning of an organization (Borman et al., 1993). In terms of safety performance, these have been termed safety participation and reflect voluntary safety behaviors that may not directly contribute to workplace safety; however, they do support the overall safety environment of the workplace (Neal et al., 2000).

In terms of identifying the mechanisms through which safety climate affects outcomes, Neal and Griffin (2000) completed pioneering work in this area and their results have been supported through later meta-analytic research (Christian et al., 2009). The main findings are that a positive safety climate is expected to enhance employees’ safety knowledge as it reflects a work environment’s formal and informal communications about safety (e.g., safety trainings and discussions; Christian et al., 2009). Specifically, safety climate has been found to be a distal predictor of safety performance (i.e., safety compliance and safety participation).
through the proximal antecedents of safety knowledge and motivation (cf. Christian et al., 2009; Griffin & Neal, 2000; Hofmann, Morgeson, & Gerras, 2003). These linking mechanisms (knowledge/motivation) are the vehicle through which later climate models are analyzed (these relationships are pictured in Figure 1).

Safety knowledge can be considered one of the proximal and most strongly related variables to safety behaviors (Christian et al., 2009). Knowledge is thought to be a direct determinant of safety behavior. Knowing how to perform a job safety (i.e., using personal protective procedures) is a precondition to enacting safety behaviors. Therefore, it is expected that safety knowledge should be strongly related to safety behaviors. In terms of safety motivation, it is again considered a direct proximal predictor of safety behaviors. The motivation to perform a job safely reflects an individual’s willingness to exert effort to enact safety behaviors and the valence associated with those behaviors (Neal & Griffin, 2006). Additionally, this has been supported through meta-analytic regression (Christian et al., 2009).

However, meta-analyses have also shown that the relationship between safety climate and accidents is often somewhat weak (cf. Clarke, 2006). This may be due to the notion that safety climate encourages safety behaviors (i.e., compliance and participation) at least partly through safety knowledge and motivation. A positive safety climate should promote safe actions through reward for these behaviors (Griffin & Neal, 2000). Further, safety climate enhances safety knowledge because it is reflective of environments where safety information is communicated formally through training and meetings and informally through on-the-job discussion (Christian et al., 2009). Given that climate affects psychological meaning
and research has shown that meaning influences motivation (Morrison et al., 1997), safety motivation also mediates the relationship between psychological safety climate and safety behaviors. Now that these linking mechanisms have been shown to be valid within the safety climate framework, this same framework is now applied to other climate foci in the following sections.
CHAPTER FOUR
HEALTH CLIMATE

There are a variety of reasons why employee health is important to individuals and organizations alike. First, in the US currently 73.1% of men and 60.2% of women are overweight or obese (Go et al., 2013), a number that continues to grow. Second, the cost and current rise in cost of healthcare is unprecedented. According to the Kaiser Family Foundation 2013 report, the average employer contribution to health insurance for each worker has risen 80% over the last ten years (from $6,657 in 2003 to $11,786 in 2013). The third reason is that poor health has been linked to lower job performance, higher absenteeism, and higher disability claims, with the total cost to the employer possibly being several times higher than for just traditional medical expenses alone (US Chamber of Commerce, 2007). Fourth, the proportion of older workers is growing at an increasing rate: in 2020, the estimated percentage of the workforce who are 55 and older will be 28.7%, as compared to 24.7% in 2010 (Toossi, 2012). It is also a fact of life that people’s health tends to decline with age (The National Bureau of Economic Statistics, 2009). When people are asked to rank their health status on a 5-point scale (where 1 is excellent and 5 is poor), the average response for men rises from 1.75 at age 20 to 2.5 at age 60. For women, there is a similar but somewhat smaller increase, from 2 to 2.5. Additionally, as employees grow older and their health declines, the cost of providing them with health insurance also increases. Lastly, although some estimates report that 90% of medium and large-sized organizations (500+
employees) have some form of a wellness program, utilization is often quite low (U.S. Department of Health and Human Services, 2011).

Beyond the employer and even employee level, it is important to consider both the global and historical background of the obesity crisis. Although the “obesity crisis” has been a buzzword of the last 10-20 years, the origins of obesity began during the industrial revolution (Caballero, 2007). By the late 1930s, life insurance companies were already using body weight data to determine premiums, as they had already identified an association between excess weight and premature death. Although the obesity problem is by no means a new phenomenon, it is certainly reaching new heights in the U.S. population. Two related issues have driven the obesity epidemic to new heights: increased caloric intake and a more sedentary lifestyle. Although caloric intake is difficult to measure in a population, it is estimated that the average American diet has increased daily caloric intake by about 200 kcal/day (Nielsen, Siega-Riz, & Popkin, 2002). This has primarily been fueled by an increase in so-called “empty calories” that lack many of the nutrients necessary to support a healthy body (U.S. Department of Health and Human Services, 2005). The other major driver of obesity in the U.S. is a sedentary lifestyle. After the industrial revolution and the decline in manufacturing in the United States, much of the economy depended (and continues to do so) on jobs that require long periods of sedentary activity. The Center for Disease Control and Prevention estimates that only around 47% of adults are meeting the recommended guidelines for weekly physical activity (Barnes, 2007). Given these two drivers of unhealthy
weight, it is important to establish how climate may affect these behavioral outcomes.

While workplace health promotion has long been a focus for public health initiatives (O’Donnell, 2001) and there has been a great deal of research attention on workplace wellness initiatives, little research has dealt with health promotion as a strategic climate focus. For instance, in a study by Wilson, Dejoy, Vandenberg, Richardson, and McGrath (2004) their measure of health and safety climate is simply the NIOSH safety climate scale. There is, however, growing interest in how employee perceptions of organizational support for health influence employee behavior (Della et al., 2008; Mearns et al., 2010; Ribisl & Reischl, 1993).

In addition to the work wellness initiatives, there has been a stream of research under the umbrella of “healthy organizations”. As previously discussed, the original conceptualization of healthy organizations was that they are competitive, innovative, growing, and adaptive (as described in Hofmann & Tetrick, 2003). Since this original formulation, there has been increased attention on not only the organization’s health but also the health of the employees within that organization. For instance, Murphy (1998) conceptualized healthy organizations as those with a culture that promotes the mental and physical health of employees in addition to productivity and organization effectiveness. There is also increased attention to the fact that employee health and organizational effectiveness are tied together. With the unprecedented rise of healthcare costs, the burden continues to grow for employers to provide reasonable healthcare to their constituents.
One issue that has not been sufficiently addressed from much of this “healthy organization” literature is indicators for measurement. Much of the literature in this area treats the concept of healthy organizations as an idea or ideal of what an organization should be rather than a concrete area for measurement. In addition, because the conceptualizations of a healthy organization that have been done are based on structural guidelines (policies & procedures), what is lacking is the perception of the individual level employee. Climate may also be an ideal area for measurement because it can assess the level of alignment between what top-management says against what the employees actually believe is rewarded within the organization. This may be important to fully understand measurement of a “healthy organization”.

In contrast with the safety climate literature where there is over 35 years of work, the research on health climate is small, but growing. Additionally, almost all of the research projects have focused on the difficult task of developing measures of health climate within the workplace with the first being Ribisl et al., (1993) then the doctoral dissertation of Mazzola (2010) followed by Sliter in (2013) and Zweber in (2014). It is interesting to note that in much of this research, the researchers seemed unaware of one another and the research streams have tended to be more or less independent. Ribisl et al.,’s (1993) work was the first attempt at health climate measurement with a scale consisting of 10 subscales representing constructs such as job flexibility to exercise, supervisor social support, and health norms. While a few subscales lacked adequate internal consistency (e.g., job flexibility to exercise, Crobach’s alpha = .61), most subscales were found to be
related to nutrition and exercise habits. While this work was important to establish the constructs future, researchers have expanded upon this to new heights and new methodologies. Following this work was the dissertation of Mazzola’s (2010), which focused on developing a scale health climate, with two main factors. One was related to workplace nutrition and the other was related to exercise. His results also demonstrated that the scale was related to health benefits, diet, exercise, and job satisfaction. Additionally, Mazzola (2010) included coworker ratings of health climate, which was an important extension, although the results were mixed somewhat mixed with the coworker ratings failing to predict some of the health related outcomes.

Sliter’s (2013) work represents a comprehensive scale development piece as she went through a three-stage item development phase to construct her health climate scale. The first phase consisted of feedback from 45 employees who were asked open-ended questions about how formal (policies & practices) and informal (coworkers & social norms) pressures within their workplace both helped and hindered their health. Following the item creation phase, Sliter (2013) pilot tested the items with 379 randomly selected employees and then conducted an exploratory factor analysis. This procedure was then followed by examining the items internal consistency (reliability) and using item response theory to further refine the scale to 14 items from the original 39. In the final iteration of the scale, there were three separate constructs termed general organizational support for healthy weight maintenance, healthy diet norms, and social support for healthy weight maintenance. After the item development phase, Sliter (2013) showed
construct validation evidenced by connecting the health climate scale to physical activity, diet quality, health motivation, health knowledge, general health, and body mass index. The results were very supportive of the newly developed scale with a strong relationship between the scale measured at the company level and all of the previously mentioned variables.

Turning to the last major research conducted in this area, Zweber’s (2014) dissertation and thesis worked to develop the Multi-faceted Organizational Health Climate Assessment survey tool (MOCHA). Zweber’s master’s thesis (Zweber, 2012) was focused on developing the tool with two different employee populations, while Zweber’s (2014) dissertation then focused on validating the scale using multi-level aggregating and a range of mental and physical health outcomes. Interestingly, the MOCHA also has three different sub-scales that represent the workgroup, supervisor, and the organization. The results were also promising with the MOCHA relating to a variety of important employee outcomes such as job stress, depression, mental health, performance, engagement, and burnout.

Although the results from these studies are encouraging, there is information lacking in relation to the mechanisms by which climate affects health. For instance, it is unlikely that employee perceptions of workplace support for health are directly related to improved body-mass. As noted previously in the safety climate literature, there are likely specific mechanisms through which climate affects health. Also, rather worryingly, none of these studies utilized a longitudinal study design. In regards to this last point, research has shown that effect sizes tend to decrease over time and that at least part of the reason for this is the effect of single-source single
measurement period inflation of effect sizes (Ford et al., 2014). The issue is that although the past results have been positive in terms of the relationship between health climate and employee outcomes, it is possible that at least part of these effects is due to the cross-sectional nature of the study designs. This study seeks to improve upon past research by investigating the climate linking mechanisms using a prospective design.

Although the literature on health climate is still small, Sliter (2013) provided initial evidence that health climate acts in a similar way to safety climate. Specifically, she found that health climate was indeed related to health knowledge, motivation, physical exercise, and body mass index. Because of the cross-sectional nature of the design, conclusions about linking mechanisms may have been premature (they were not tested in the study). Additionally, Mazzola (2010) tested the mediating effects of healthy behaviors (diet and exercise) on the relationship between climate and outcomes (BMI), but unfortunately did not find any significant effects. What may have been lacking in his study was the inclusion of health knowledge and motivation. Finally, Zweber (2014) tested two different models of the relationship between health climate and outcomes. The first used intentions to engage in healthy behaviors as a mediator and there was some evidence that it mediated the relationship between health climate and hand-grip strength and body mass index. The second was a model in which health climate was the mediator between job control and job stress, performance, fatigue, and healthy days; this relationship was only partially supported with performance. Following these results, it is hypothesized that health climate will follow similar mechanisms as
safety climate in that knowledge and motivation will mediate the relationship between behaviors and that both of these constructs will mediate the relationship between climate and objective health (i.e., body mass index; see Figure 2; All hypotheses are presented in Appendix C).

Hypothesis 1a. Psychological health climate will be positively associated with health knowledge.

Hypothesis 1b. Psychological health climate will be positively associated with health motivation.

Hypothesis 2a. Health knowledge will be positively associated with exercise behaviors.

Hypothesis 2b. Health knowledge will be positively associated with healthy diet.

Hypothesis 3a. Health motivation will be positively associated with exercise behaviors.

Hypothesis 3b. Health motivation will be positively associated with healthy diet.

Hypothesis 4a. Health motivation will mediate the relationship between psychological health climate and exercise behaviors.
Hypothesis 4b. Health knowledge will mediate the relationship between psychological health climate and exercise behaviors.

Hypothesis 4c. Health motivation will mediate the relationship between psychological health climate and diet.

Hypothesis 4d. Health knowledge will mediate the relationship between psychological health climate and diet.

Hypothesis 5a. Exercise behaviors will be negatively associated with BMI.

Hypothesis 5b. Healthy nutrition will be negatively associated with BMI.

Hypothesis 6a. Exercise behaviors will mediate the relationship between health knowledge and BMI.

Hypothesis 6b. Exercise behaviors will mediate the relationship between health motivation and BMI.

Hypothesis 6c. Healthy nutrition will mediate the relationship between health knowledge and BMI.

Hypothesis 6d. Healthy nutrition will mediate the relationship between health motivation and BMI.
Hypothesis 7a. Health knowledge and exercise behaviors will mediate the relationship between psychological safety climate and BMI.

Hypothesis 7b. Health knowledge and healthy nutrition will mediate the relationship between psychological safety climate and BMI.

Hypothesis 7c. Health motivation and exercise behaviors will mediate the relationship between psychological safety climate and BMI.

Hypothesis 7d. Health motivation and healthy nutrition will mediate the relationship between psychological safety climate and BMI.

**Moderators of the health climate-outcome linking mechanisms**

**Individual differences**

Following from the previous discussion of BAS it is thought that individuals who are high in this trait represent greater activation in the biological system corresponding to positive affect. This may in turn lead individuals to be more prone to engage in behaviors. Additionally, it follows that if individuals have the knowledge and motivation to engage in healthy behaviors than those individuals with higher levels of BAS will experience stronger affect in regards to these behaviors, which should increase their participation in these behaviors. Lastly, as previously discussed in the section introducing the moderators, it is also important to understand this crucial link between individual attributes and behavior to help explain why individuals who have the requisite knowledge and motivation, but do not engage in those behaviors. Therefore, it is hypothesized that BAS will moderate the relationship between health knowledge/motivation and healthy behaviors, such
that individuals with high levels of BAS will have a greater relationship between health knowledge/motivation and healthy behaviors.

*Hypothesis 8a.* BAS will moderate the relationship between health knowledge and healthy diet. Specifically, when individuals are high in BAS the relationship between health knowledge and healthy diet will be stronger than when individuals are low in BAS.

*Hypothesis 8b.* BAS will moderate the relationship between health knowledge and exercise behaviors. Specifically, when individuals are high in BAS the relationship between health knowledge and exercise behaviors will be stronger than when individuals are low in BAS.

*Hypothesis 8c.* BAS will moderate the relationship between health motivation and healthy diet. Specifically, when individuals are high in BAS the relationship between health motivation and healthy diet will be stronger than when individuals are low in BAS.

*Hypothesis 8d.* BAS will moderate the relationship between health motivation and exercise behaviors. Specifically, when individuals are high in BAS the relationship between health motivation and exercise behaviors will be stronger than when individuals are low in BAS.

The logic as to why BIS would moderate the relationship between health knowledge and motivation and healthy behaviors follows a similar pattern as BAS. Although the two underlying motivational systems represent different cognitive structures, individuals who are high in BIS should have greater activation in the
systems associated with negative affect and fear. Because of this activation it should increase the link between knowledge and motivation and healthy behaviors. Therefore, although BAS and BIS represent two distinct systems they may operate in similar ways as previous research has shown (Diefendorff & Mehta, 2007; Ferris et al., 2011). Following, it is hypothesized that BIS will moderate the relationship between health knowledge/motivation and healthy behaviors, such that individuals with high levels of BIS will have a greater relationship between health knowledge/motivation and healthy behaviors.

**Hypothesis 9a.** BIS will moderate the relationship between health knowledge and healthy diet. Specifically, when individuals are high in BIS the relationship between health knowledge and healthy diet will be stronger than when individuals are low in BIS.

**Hypothesis 9b.** BIS will moderate the relationship between health knowledge and exercise behaviors. Specifically, when individuals are high in BIS the relationship between health knowledge and exercise behaviors will be stronger than when individuals are low in BIS.

**Hypothesis 9c.** BIS will moderate the relationship between health motivation and healthy diet. Specifically, when individuals are high in BIS the relationship between health motivation and healthy diet will be stronger than when individuals are low in BIS.

**Hypothesis 9d.** BIS will moderate the relationship between health motivation and exercise behaviors. Specifically, when individuals are high in BIS the
relationship between health motivation and exercise behaviors will be stronger than when individuals are low in BIS.

Job characteristics

Although not introduced in the previous discussion, the role of occupational characteristics may be important to consider within the climate linking mechanism relationship. In support of this assertion, research has found conclusively that job characteristics explain substantial variance in job attitudes and employee behaviors (e.g., Hackman & Oldman, 1976; Morgeson & Humphries; Repetti, 1987; Spector & Jex, 1991). This concept has remained largely unexplored in the climate literature, specifically related to safety. Typically the sample is chosen with great care within safety climate research and it is done so to maximize the importance of safety within the workplace. Therefore, the research is typically conducted in high-risk occupations such as construction, mining, and oil and gas (Clarke, 2006). Additionally, if you are tying safety climate to accidents and injuries then it is wise to choose an occupation with at least a base level of accidents given that the connection would be much harder to make with a job where injuries are less frequent (i.e., desk job). Although there is research that evaluates the impact of things such as job demands and decision latitude (Gillen, Baltz, Gassel, Kirsch, & Vicaro, 2002), there is no research concerned with the physical demands of the workplace, as it is usually implied within the safety climate literature or at least held constant due to a singular occupational focus.

Given that safety has high importance in dangerous occupations, the question then becomes what are occupations or occupational characteristics that may raise
the importance of employee physical health. One possibility is that health climate may be more important in occupations that are physically demanding. For instance, in certain occupations a back strain (e.g., desk bound jobs) may not cause work performance to suffer, but in occupations that require heavy lifting and movement, any type of physical injury would likely cause significant decreases in job performance or even require time off. Because all occupations are assumed to have a baseline level of health climate, that is most organizations should be interested in controlling health costs, in occupations that require greater physical exertion there may be greater pressure on individual employees to learn more about and be more motivated to keep up their physical health. By examining the impact of physical exertion of the job, it may be possible to disentangle the impact that occupational moderators may have on the relationship between psychological health climate and health knowledge and motivation. Therefore, it is hypothesized that psychological health climate will have a stronger relationship to health knowledge and motivation in occupations which require a high level of physical exposure than those that do not.

*Hypothesis 10a. Physical exposure will moderate the relationship between psychological health climate and health knowledge. Specifically, when individuals have jobs that have high physical exposure the relationship between psychological health climate and health knowledge will be stronger than when individuals are in jobs with low physical exposure.*

*Hypothesis 10b. Physical exposure will moderate the relationship between psychological health climate and health motivation. Specifically, when...*
individuals have jobs that have high physical exposure the relationship between psychological health climate and health motivation will be stronger than when individuals are in jobs with low physical exposure.
CHAPTER FIVE
STRESS REDUCTION CLIMATE

The other specific organizational priority investigated in this paper is stress reduction climate. According to the American Psychological Association’s Stress in America (2015) survey, 82% of Americans state that their stress has either increased or stayed the same in the past year, which means only 18% reported experiencing any decrease in stress. Additionally, this report has consistently found over the years that an individual’s job remains as one the top stressors facing individuals. Researchers have also identified occupational stress as a “worldwide epidemic” (Avey, Luthans, & Jensen, 2009). The Center for Disease Control and Prevention (CDC) reports that 40 percent of workers report that their job is “very or extremely stressful” (CDC, 2014). Additionally, approximately 19 million American adults suffer from a depressive illness in any given year (Valenstein, Vijan, Zeber, Boehm, & Buttar, 2001). Due to this illness, employees missed approximately 200 million workdays, resulting in a total cost to employers between $17-44 billion (Leopold, 2001; Stewart, Ricci, Chee, Hahn, & Morganstein, 2003). The total workdays lost to depression is greater than heart disease, hypertension, and diabetes (National Committee for Quality Assurance, 2004). Consequently, NIOSH has described the prevention of work-related psychological disorders as a leading occupational health problem (Sauter, Murphy, & Hurrell, 1990). In order to fully define a “healthy organization”, one must be able to go beyond preventing safety
incidents and improving physical health to also investigate how an organization can support the psychological health of its employees.

Turning to past research in this area, there are a small but growing number of studies that have investigated topics related to the strategic priority of stress reduction in the workplace. One recent development related to psychological disorder prevention is the literature on Psychosocial Safety Climate (PSC), which has been defined as “policies, practices, and procedures for the protection of worker psychological health and safety” (Dollard & Bakker, 2010, p. 580). Chen et al. (2015) note that PSC resembles safety climate in that it reflects perceptions about management priorities, organizational communication, employee participation, and top management commitment to employee health and well-being. Rather than focusing solely on employees’ physical safety, PSC emphasizes freedom from psychological harm. The authors frame PSC as being largely determined by management priority for worker psychological health (Idris, Dollard, & Yulita, 2014). In addition, it is primarily concerned with management commitment and support for stress prevention, although there is an additional focus on employee safety.

Interestingly, there have been a variety of research streams around PSC. For instance, in one of the original conceptualizations of PSC (Dollard & Bakker, 2010) it acted as a workplace resource that was associated with reduced demands and increased resources, which then led to decreased psychological health problems and increased workplace engagement. Additionally, follow up studies have confirmed that PSC can act as a resource following the Job-Demands Resources (JDR) model of
psychological stress (Law, Dollard, Tuckey, & Dormann, 2011). More recently (Idris et al., 2014), it has been conceptualized as a precursor to job characteristics that affect employee stress and engagement. Additionally, research has found that there may be guidelines around “safe” levels of PSC within the workplace with a score greater than 41 being associated with greater job strain and depressive symptoms (Bailey, Dollard, & Richards, 2015). In contrast with other climate research, the PSC literature has contended that the mediating mechanisms of PSC to employee psychological health are the job context itself (Idris et al., 2014). Although the original formulation of PSC came from the safety climate literature, the research stream has tended to consider PSC more along the lines of stress research (i.e., COR theory) rather than within the climate framework (i.e., lacking behavioral outcomes). Through the different measurement tools and differing theoretical arguments, research indicates that PSC is related to engagement and psychological health (Idris et al., 2014). Following the arguments that safety climate is a leading indicator of accidents, PSC has been argued to be a leading indicator of workplace bullying and possibly depression (Bond, Tuckey, & Dollar, 2010; Law et al., 2011).

There are two main critiques of this area that need to be addressed. The first is the high correlation between PSC and safety climate (.74 in one sample; Idris, Dollar, Coward, & Dormann, 2012), the issue being that there is significant overlap between PSC and safety climate. Designing a measure that is specific to stress rather than mostly stress and some safety would be an important step in clearing up the conceptual overlap and would help to establish discriminant validity. This may also help researchers improve their conclusions if it is possible to disentangle the effects
of safety and stress. The second issue is considering the linking mechanisms through which PSC affects psychological health. As has been discussed in the previous climate discussions, it is hypothesized that climate affects employee health through specific linking mechanisms. Although there is no research in this area to support the idea that PSC encourages employees to gain more knowledge about and be more motivated to control their stress level, it seems reasonable given the research on safety and health climate. The question then becomes what behavior would follow this stress reduction knowledge and motivation that would then lead to improved psychological health. Following the stress literature, coping would seem to be the most proximal predictor of psychological health (Lazarus, 1966).

Coping is a well-established part of the stress process. Coping effectively with stressors is associated with many positive outcomes such as lower levels of burnout (e.g., Cheuk, Wong, Swearse, & Rosen, 1997) and improvements in both physical and mental health (Conway & Terry, 1992; Masel, Terry, & Gribble 1996). In contrast, ineffective coping has been associated with greater distress and anger (Hahn, 2000; Portello & Long, 2001), depression and poor physical health (Zeidner & Saklofske, 1996). Additionally, coping may be particularly important in the workplace because organizations rely on employees to manage their job demands to reach organizational goals.

Coping may play a very powerful role even in the perception of stress. For instance, Lazarus (1966) defined stress as occurring when an individual perceives that the demands of an external situation are beyond his or her perceived ability to cope with them. This definition follows Lazarus’ Cognitive-Transactional Model
(Lazarus & Folkman, 1984), which emphasizes the cognitive appraisal of the stressor and the situation. In other words, Lazarus’ Cognitive-Transactional Model describes the relationship between demands and the power to deal with those demands through the appraisal processes. Lazarus and Folkman (1984) argued that people suffer stress when they believe they lack the resources to deal with difficult events. The authors also noted the importance of the relationship between individuals and their surroundings and emphasized the role of cognitive processes and intervening variables (such as appraisal and coping). Coping by definition then is the execution of a response to a threat stemming from stress (Carver, Scheier, & Weintraub, 1989).

In the context of the climate literature, adaptive or successful coping can be defined as stress reduction performance in that it represents the behavioral outcome of improving an employee’s workplace stress it may even be viewed analogous to performance within one’s role. Moreover, coping refers to a behavior that protects a person from being harmed, psychologically, by social experiences (Pearlin & Schooler, 1978). Coping reflects an active response, representing the idea that people must choose to respond to stress in an active manner in order to cope with the situation. Coping may be performed by eliminating or modifying the aspects of the environment that provoke problems, controlling experiences, and/or keeping the emotional outcomes of problems within reason (Carver & White, 1994). As noted previously not all coping is effective in reducing the amount of stress experienced and maladaptive coping has been linked to a variety of negative outcomes (Littleton, Horsley, John, & Nelson, 2007).
Within the coping literature there has also been a gaining understanding that there are two main types of coping styles: problem and emotion-focused (Roesch et al., 2010; Welbourne et al., 2007) and that these two styles are only effective when paired with the correct context. Problem-focused coping is any type of coping that attempts to modify the situation directly to reduce strains. Emotion-focused coping on the other hand has been defined as responses that attempt to change the meaning of the problem (Pearlin et al., 1978). According to Pearlin and Schooler (1978) either of these strategies may be effective given the context of the situation. More specifically, whether the individual has the ability to control the stressor. Matching the appropriate response to the situation is key in determining if the right coping strategy has been chosen.

This has been termed the “matching hypothesis” (Lazarus, 1993) and has received support from longitudinal studies (Park, Ameli, & Tennen, 2004; Zakowski, Hall, Klein, & Baum, 2001). The main tenet of this hypothesis is that the effectiveness of any coping effort is contingent upon the degree to which an individual appropriately matches a coping strategy with characteristics of the stressful situation. One assumption of this model is that individuals will appropriately choose the correct coping for the stressor. It is possible that one way to increase effective coping would be increasing the amount of knowledge and motivation individuals have associated with reducing stressors. Therefore in this study problem and emotion-focused coping are treated equally as it is assumed that individuals with the right knowledge and motivation will choose the correct coping mechanism in response to workplace stressors.
Turning to the current study, it is important to investigate what role coping plays in the relationship between psychological stress reduction climate, stress reduction knowledge/motivation, and psychological health. If support were found for coping as a climate linking mechanism, it would extend much of the past conceptualizations of PSC and may help guide future research. Although these findings would certainly differ from much of the past research on PSC (e.g., viewing PSC as a resource), it would help align it with the other climate literatures (i.e., safety climate). It is therefore hypothesized that stress reduction climate will follow similar mechanisms as health and safety climate to affect psychological health (see Figure 3).

_Hypothesis 11a. Psychological stress climate will be positively associated with stress reduction knowledge._

_Hypothesis 11b. Psychological stress climate will be positively associated with stress reduction motivation._

_Hypothesis 12a. Stress reduction knowledge will be positively associated with problem focused coping behavior._

_Hypothesis 12b. Stress reduction knowledge will be positively associated with emotion focused coping behavior._

_Hypothesis 13a. Stress reduction motivation will be positively associated with problem focused coping behavior._
Hypothesis 13b. Stress reduction motivation will be positively associated with emotion focused coping behavior.

Hypothesis 14a. Stress reduction motivation will mediate the relationship between psychological stress climate and problem focused coping behaviors.

Hypothesis 14b. Stress reduction knowledge will mediate the relationship between psychological stress climate and problem focused coping behaviors.

Hypothesis 14c. Stress reduction motivation will mediate the relationship between psychological stress climate and emotion focused coping behaviors.

Hypothesis 14d. Stress reduction knowledge will mediate the relationship between psychological stress climate and emotion focused coping behaviors.

Hypothesis 15a. Problem focused coping behaviors will be positively associated with employee psychological well-being.

Hypothesis 15b. Problem focused coping behaviors will be negatively associated with employee DSM-V symptomatology.

Hypothesis 15c. Emotion focused coping behaviors will be positively associated with employee psychological well-being.

Hypothesis 15d. Emotion focused coping behaviors will be negatively associated with employee DSM-V symptomatology.
Hypothesis 16a. Problem focused coping will mediate the relationship between stress reduction knowledge and psychological well-being and DSM 5 symptomatology.

Hypothesis 16b. Problem focused coping will mediate the relationship between stress reduction motivation and psychological well-being and DSM 5 symptomatology.

Hypothesis 16c. Emotion focused coping will mediate the relationship between stress reduction knowledge and psychological well-being and DSM 5 symptomatology.

Hypothesis 16d. Emotion focused coping will mediate the relationship between stress reduction motivation and psychological well-being and DSM 5 symptomatology.

Hypothesis 17a. Stress reduction knowledge and problem-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17b. Stress reduction motivation and problem-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17c. Stress reduction knowledge and emotion-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.
Hypothesis 17d. Stress reduction motivation and emotion-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17e. Stress reduction knowledge and problem-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17f. Stress reduction motivation problem-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17g. Stress reduction knowledge and emotion-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17h. Stress reduction motivation and emotion-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Moderators of the stress climate-outcome linking mechanisms

Individual differences

Based on the previous discussion of BAS it is thought that individuals who are high in BAS are high in positive activation. This activation is then thought to cause individuals to be more likely to engage in goal directed behavior. It follows that if individuals have the requisite stress reduction knowledge and motivation if they are high in BAS they may be more likely to engage in coping behaviors to
reduce their stress than individuals who are low in BAS. Additionally, although the different organizational priorities (e.g., health & stress) may differ in the specific forms of knowledge/motivation targets and the behaviors rewarded, there is no reason to hypothesize that there would be any difference in terms of their relationship. Therefore, it is hypothesized that BAS will moderate the relationship between stress reduction knowledge/motivation and coping behaviors, such that individuals who are higher in BAS will have a stronger relationship between stress reduction knowledge/motivation and coping behaviors than those who are low on these systems.

Hypothesis 18a. BAS will moderate the relationship between stress reduction knowledge and problem focused coping behavior. Specifically, when individuals are high in BAS the relationship between stress reduction knowledge and problem focused coping behaviors will be higher than when individuals are low in BAS.

Hypothesis 18b. BAS will moderate the relationship between stress reduction knowledge and emotion focused coping behavior. Specifically, when individuals are high in BAS the relationship between stress reduction knowledge and emotion focused coping behaviors will be higher than when individuals are low in BAS.

Hypothesis 18c. BAS will moderate the relationship between stress reduction motivation and problem focused coping behavior. Specifically, when individuals are high in BAS the relationship between stress reduction motivation and
problem focused coping behaviors will be higher than when individuals are low in BAS.

Hypothesis 18d. BAS will moderate the relationship between stress reduction motivation and emotion focused coping behavior. Specifically, when individuals are high in BAS the relationship between stress reduction motivation and emotion focused coping behaviors will be higher than when individuals are low in BAS.

Turning to the effect of BIS, it is also thought that individuals who are high in BIS will have greater negative activation than those who are lower in BIS. Although this activation is primarily driven by fear and anxiety instead of positive emotions it should still be associated with increased behavioral outcomes. Following this if individuals have the requisite amount of knowledge and motivation if they are high in BIS they should be more prone to engage in behaviors to reduce their stress. Due to this, it is hypothesized that BIS will moderate the relationship between stress reduction knowledge/motivation and coping behaviors, such that individuals who are higher in BIS will have a stronger relationship between stress reduction knowledge/motivation and coping behaviors than those who are low on these systems.

Hypothesis 19a. BIS will moderate the relationship between stress reduction knowledge and problem focused coping behavior. Specifically, when individuals are high in BIS the relationship between stress reduction knowledge and
problem focused coping behaviors will be higher than when individuals are low in BIS.

Hypothesis 19b. BIS will moderate the relationship between stress reduction knowledge and emotion focused coping behavior. Specifically, when individuals are high in BIS the relationship between stress reduction knowledge and emotion focused coping behaviors will be higher than when individuals are low in BIS.

Hypothesis 19c. BIS will moderate the relationship between stress reduction motivation and problem focused coping behavior. Specifically, when individuals are high in BIS the relationship between stress reduction motivation and problem focused coping behaviors will be higher than when individuals are low in BIS.

Hypothesis 19d. BIS will moderate the relationship between stress reduction motivation and emotion focused coping behavior. Specifically, when individuals are high in BIS the relationship between stress reduction motivation and emotion focused coping behaviors will be higher than when individuals are low in BIS.
CHAPTER SIX

METHOD

Participants

The present study investigated the proposed hypotheses through an Internet sample of employed adults using Amazon's web service known as Mechanical Turk (MTurk). Originally developed by Amazon for its own use to categorize objects to sell on their online store, MTurk is now a powerful research tool that allows any researcher to request human-intelligence-tasks (HITs) to be completed by any individual who is willing to complete them (18+ years of age). MTurk was launched in 2005 and now contains an average of over 100,000 HITs at any time. Additionally, the number of workers has grown substantially with 100,000 in 2007 to over 500,000 in 2011 (Barger, Behrend, Sharek, & Sinar, 2011).

One important question to address is the characteristics of the workers on Mturk. Research has generally found that approximately 65% are female, 60% are older than 30 years of age, the modal income is somewhere between $40,000-$60,000, and 78% have at least a bachelor’s degree (Ipeirotis, 2010; Paolacci, Chandler, & Ipeirotis 2010). Given these demographics, while MTurk workers are very similar to the general US population, there are a couple of small differences that should be noted. Specifically, MTurk workers are generally younger, more likely to be female, have higher education levels, and have fairly similar houseful incomes to the general population. Importantly for this study workers have been found to come from a wide range of industries and work backgrounds (Barger et al., 2011).
Several studies have investigated the data quality of MTurk samples. Paolacci et al., (2010) replicated three well-known decision making experiments with an MTurk sample, a discussion board, and a student sample. The results revealed that there were minimal differences between the three groups. Burhmester, Kwang, and Gosling (2011) compared MTurk with a large Internet sample and found no differences in task scores. Lastly, Behrend, Sharek, Meade, and Weibe (2011) compared the data quality of MTurk to a college sample and found that MTurk was actually superior to the college sample on psychometrics using measures of the Big Five and goal orientation.

In my data collection there were 1,040 participants at Time 1. In the two month follow-up survey there was 564 participants reflecting a 46% attrition rate. In terms of sample demographics, the average age was 32.5 years old, 49.3% female, 36.5% had a bachelor's degree, and the average hours worked per week was 42. We also recorded job title with answers ranging widely from security officer, and bartender, to customer service representative.

**Procedure**

**Design.** Surveys were released to employed (20+ hours a week; outside of Mturk) US members of Mturk. Although it is impossible to know for certain whether these conditions were met, these were the requirements posted on the HIT. Additionally, individuals answered questions related to whether they were employed outside of MTurk and the amount of hours they worked per week. Wave 1 contained all demographics, climate measures, knowledge/motivation items, BAS/BIS scales. Approximately (within one week) two months later a follow up
survey was sent to all participants who completed the original survey. The Wave 2 questionnaire contained items measuring behaviors, physical exposure, as well as the outcome variables of interest. Each survey contained four attention check items that were added to improve data quality. This was done as previous research has shown that attention items improve the quality of data (Meade & Craig, 2012). The items asked participants to, for instance, “mark strongly agree” if participants failed to do so they were asked if they would like to complete the survey again from the beginning or whether to stop and not be compensated. If they selected yes they started the survey again and if they failed another one of the items they were dropped out of the study and were not compensated. The percentage and raw number of participants who passed and failed each level of the survey is presented in Table 1. Additionally, wave 1 and wave 2 sample characteristics did not significantly differ as shown in Table 2.

**Measures**

**Climate measures**

The psychological climate measures were developed as part of the study and were modeled both on safety climate measures and currently in use scales specific for each of the climate foci. The first step in developing the scales was a consultation of the literature. In a survey of the safety climate scales Flin, Mearns, O’Connor, and Bryden (2000) found that there were three main themes of most safety climate scales, which are management, the safety system (policies & procedures), and risk. More current scales (Zohar & Luria, 2005) focus more exclusively on management (either at the top or supervisor level) and additionally there are studies that analyze
safety climate at the coworker level (Lu & Tsai, 2008). The measures were therefore created to reflect four specific-yet-interrelated forms or subscales of social norms within the workplace: top-management, supervisor, coworkers, and policies/procedures.

Following this process, the climate scales were modeled after existing safety climate measures (Neal & Griffin, 2006) in terms of structure and then focused on the strategic priority through matching to existing scales with the same focus (i.e., health to health). Specifically, the structure of the safety climate scale was applied to existing measures of health and stress climate. Because some of the existing measures did not include certain subscales (i.e., no top-management subscale) items were created based on the safety climate formatting and then focused on either physical or mental health. The scales from which the climate measures were modeled after are included in each of the sections. Additionally, research by Munc, Sinclair, Burns, and Cheung (2015) using this data set, found that each of the three climate measures were distinct from each other as tested through multiple confirmatory factor analyses.

**Health climate** was measured using 14 items modified from Mearns et al., 2008 and Della et al., 2008. The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree”. The items were created to fall into four different subscales of top-management support, supervisor support, communication with coworkers about health, and policies and procedures around the health in the workplace. A sample item for top management is “Top
leadership is committed to health promotion as an important investment”. The items are presented in Appendix D. The alpha Cronbach’s reliability was excellent at .95.

**Stress climate** was measured using 14 items modified from Dollard et al., (2010). The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree”. The items were created to fall into four different subscales of top-management support, supervisor support, communication with coworkers about stress, and policies and procedures around the workplace. A sample item for top management is “Top-management continually tries to improve employee stress levels”. The items are presented in Appendix D. The alpha Cronbach’s reliability was excellent at .97.

**Knowledge and motivation measures**

The knowledge and motivation measures were based on Neal, Griffin, and Hart’s (2000) measures of safety knowledge and motivation. The scales were modified by simply changing the focus from safety to the new strategic focus of either health or stress reduction. Neal et al.’s (2000) safety knowledge and motivation measures are presented in Appendix D along with the modified versions to reflect health and stress.

**Health knowledge** was measured using three-items from a modified version of Neal et al.’s (2000) measure of safety knowledge. The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree”
and were measured at Wave 1. The items were edited to reflect health instead of safety with an example item being “I know what I need to know in order to improve my overall health”. Cronbach’s alpha was acceptable at .85. The items are presented in Appendix D.

**Health motivation** was measured using two-items from a modified version of Neal et al.’s (2000) measure of safety motivation. The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree” and were measured at Wave 1. Again the items were edited to reflect health instead of safety with an example item being “I feel it is worthwhile to put in effort to maintain my health”. Cronbach’s alpha was excellent at .92. Unfortunately, rather than the same three item scale used in the other measures there was a clerical error where one of the items was not included in the survey. While this can be considered a drawback of the scale, the resulting internal reliability revealed that there was a strong relationship between the two items. The items are presented in Appendix D.

**Stress knowledge** was measured using three-items from a modified version of Neal et al.’s (2000) measure of safety knowledge. The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree” and were measured at Wave 1. Again the items were edited to reflect stress instead of safety with an example item being “I know what I need to know in order to reduce my stress at work”. Cronbach’s alpha was acceptable at .89. The items are presented in Appendix D.
**Stress motivation** was measured using three-items from a modified version of Neal et al.’s (2000) measure of safety motivation. The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree” and were measured at Wave 1. Again the items were edited to reflect stress instead of safety with an example item being “I feel it is worthwhile to put in effort to manage my stress at work”. Cronbach’s alpha was acceptable at .72. The items are presented in Appendix D.

**Employee behaviors**

**Healthy behaviors** were measured using Sliter’s (2013) four-item measure of physical activity while diet was assessed using Sliter’s (2013) 12-item scale of diet quality. The physical activity items were scored on a 7-point frequency scale with 1 being “no days a week” and 7 being “every day in a week” and were measured at Wave 2. An example item is “Moderate aerobic activity (e.g., Brisk walking, bicycling, tennis)”. The diet quality measure was also scored on a 7-point frequency scale with 1 being “very rarely or not at all” and 7 being “5+ times a day”. Some example items are “whole grains” and “candy/cake/cookies”. Cronbach’s alpha for the physical activity scale was low .54, while diet quality was acceptable at .72. It should be noted that the lower reliabilities (specifically for exercise) are not surprising because if an individual engages in strenuous physical activity we cannot assume that they also engage in light or moderate exercise (non-reflective variables). The items are presented in Appendix D.
Coping was measured using the Brief COPE scale from Carver (1997). The items were scored on a 5-point frequency scale with 1 being “I usually don’t do this at all” and 5 being “I usually do this a lot” and were measured at Wave 2. An example item for problem-focused coping is “I’ve been concentrating my efforts on doing something about the situation I am in”, while an example item for emotion-focused coping is “I’ve been trying to find comfort in my religion or spiritual beliefs”. Problem focused coping consisted of active coping, planning, and positive reframing, while emotion focused coping consisted of humor, religious, behavioral disengagement, and emotional social support following Wright, Mohr, Sinclair, and Yang’s (2015) distinction. In terms of Cronbach’s alpha reliability, problem-focused coping was acceptable at .88, while .68 emotion-focused coping was low. Although emotion-focused reliability was somewhat low some have suggested that coping measures may be more like checklists due to the broad range of coping behaviors assessed and the potential unequal use of different coping strategies, which may cause low reliability (Wright et al, 2015; Bollen & Lennox, 1991). The items are presented in Appendix D.

Outcomes

Body Mass Index was calculated based on the standard equation (World Health Organization, 1995) and measured at Wave 2. It was calculated by asking participants to report their height and weight in imperial units. Following this because imperial units were used, the formula multiplies weight by 703, squaring total height in inches, and then dividing these two numbers. Although there exist some questions about the utility of BMI as an appropriate measure of health
(Visscher, Seidell, Molarius, Van der Kuip, Hofman, & Witteman, 2001) it has been linked to numerous outcomes such as cancer (Renehan, Tyson, Egger, Heller, & Zwahlen, 2008), bone fractures (De Laet et al., 2005), and coronary and cardiovascular disease (McGee, 2005). Although there may be a tendency to misclassify some individuals (i.e., bodybuilders or professional athletes), this measure still remains an important tool for researchers especially with larger data sets since the uniqueness of some individuals will have less of an influence on the overall results.

**Psychological well-being** was measured using Ryff’s (1989) 18-item scale. The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree” and were measured at Wave 2. An example item is “When I look at the story of my life, I am pleased with how things have turned out”. Although the original conceptualization of psychological well-being by Ryff (1989) included six different subscales (self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relations to other) it was treated as a unidimensional construct within this study. This was done in order to have a measure of “overall psychological well-being” beyond the different facets that Ryff (1989) proposed. This was also done in order to enable comparison between the DSM 5 symptomatology measure, as it represents an overall checklist of negative mental states, psychological well-being was treated as an overall checklist of positive mental states. Cronbach’s alpha for the scale was acceptable at .72. The items are presented in Appendix D.
**DSM 5 symptomatology** was assessed using the DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure—Adult at Wave 2 (Clarke & Kuhl, 2014). It contains items measuring symptoms of depression, anger, anxiety, sleep problems, and other psychological maladies. The scale contains 23 items that were summed to create an overall measure of psychological health. The items were scored on a 7-point agreement scale with 1 being “none of the time” and 7 being “all of the time”. It was measured at Wave 2 and participants were asked about how bothered they were by each of the following questions during the last two weeks. An example item is “Feeling down, depressed or hopeless”. The Cronbach’s alpha was acceptable at .85. The items are presented in Appendix D.

**Moderator variables**

**Behavioral Activation System (BAS)** was assessed with 13 items using the original Carver and White (1994) measure. The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree” and were measured at Wave 1. A sample item is “If I see a chance to get something I want, I move on it right away”. Although the original scale was designed to represent three different subscales (drive, reward responsiveness, & fun seeking) contemporary researchers have since used a combined scale that represents overall levels of BAS (Diefendorff & Mehta, 2007; Ferris et al., 2011). This approach is also consistent with personality research when researchers simply measure extraversion as a whole instead of its subscales (warmth, gregariousness, assertiveness, activity, excitement seeking, & positive emotion; Costa & McCrae, 1992). The Cronbach’s alpha was acceptable at .85. The items are presented in Appendix D.
**Behavioral Inhibition System (BIS)** was assessed with 7 items using the original Carver and White (1994) measure. The items were scored on a 7-point agreement scale with 1 being “strongly disagree” and 7 being “strongly agree” and were measured at Wave 1. A sample item is “I worry about making mistakes”. The Cronbach’s alpha was acceptable at .85. The items are presented in Appendix D.

**Physical exposures** was assessed using 12-items adapted from the NIOSH generic job stress questionnaire (Hurrel & McCleany, 1988) that were then adapted by Sinclair, Martin, and Sears (2010). The items were scored on a 5-point frequency scale with 1 being “a few times a year or never” and 5 being “many times each day” and were measured at Wave 2. A sample item is “Lift, push, or pull heavy objects (e.g., over 80 pounds)”. The Cronbach’s alpha was acceptable at .83. The items are presented in Appendix D.

**Demographics**

**Demographic variables** collected were age, gender, and level of education. Age was measured on a continuous scale (i.e., age in years), gender was coded as male = 1 and female = 2, education was coded as less than high school = 1, high school = 2, associates degree = 3, bachelors degree = 4, masters degree = 5, advanced education (PhD, MD, JD) = 6. This information was collected in order to help disentangle any possible effect that these variables may have on the relationship between climate and employee outcomes.

**Analyses**
The first analysis conducted was screening the data for evidence of random responding. Given that the data was collected via a third-party Internet sample and even with the attention check items there be some participants who responded carelessly. One of the simplest and best ways to spot random responding is through outlier analysis (Atkinson, 1994). This was completed as a two-step process with the first being creating Mahalanobis distance points for each of the participants in the study. After the points were created for each participant they were graphed (Figure 4).

After the data was cleaned and the outliers were removed, I then turned to the more advanced analyses. For simplicity’s sake, I will describe the analyses in general for the different climate foci. Given that each of the hypotheses follow the same general format they were tested in a similar fashion. The general analyses techniques used were confirmatory factor analysis and structural equation modeling. Given that many of the constructs that were investigated in this dissertation could be considered latent variables, structural equation modeling helps eliminate some of the error inherent in our measurement techniques (Ullman & Bentler, 2003). Following the two-step format of structural equation modeling, the first series of analyses concerned establishing sound measurement of the constructs through confirmatory factor analysis, while the second was testing the relationships between the constructs of interest.

The first step of the analyses was analyzing the newly created climate scales using confirmatory factor analysis following the guidelines outlined by Kline (2010). I utilized confirmatory factor analysis instead of other analysis techniques (i.e.,
exploratory factor analysis) because of the hypothesized four-factor structure of the items. Additionally, both knowledge and motivation were also analyzed as latent variables with three items leading to one overall factor of either knowledge or motivation (except for health motivation because of the missing item). In regards to the behavioral measures, it is likely that they may not represent latent factors. For instance, in regards to the physical activity measure if someone indicates that they exercise 3 days a week then there is likely no measurement error to that needs to be corrected. This is also assumed to be with the case for the other behavioral measures. Given that, these constructs were measured using observed mean scores following the standard regression protocol and therefore were analyzed as observed instead of latent variables. In terms of the outcome variables of interest body mass index, psychological well-being, and DSM symptomatology these were also measured at the observed level.

Turning to the testing of the full structural models of the data, it was analyzed as depicted in Figures 1-3 and fit indices were assessed to ascertain model fit. The moderation hypotheses were tested using typical multiple regression using the guidelines set out by Baron and Kenny (1986). Following the mean centering of all predictors and proposed moderators, an interaction term was created by multiplying the predictor and moderator variable. Following that multiple regression was conducted to understand whether any significant moderating effect existed and all significant interactions were then graphed.
CHAPTER SEVEN

RESULTS

The first step was analyzing the data for outliers. A regression was performed with psychological health climate, psychological stress climate, health knowledge/motivation, and stress reduction knowledge/motivation predicting psychological well-being to create the Mahalanobis distance points. Following the creation of the distance points they were graphed and are pictured in Figure 4. Due to missing data on the predictors entered, 930 points were created with a mean of 5.96. Upon inspection of the histogram there seemed to be a break in the data at a Mahalanobis distance of 26 with the highest reaching a distance of 75. Following this 14 participants were deleted and were subsequently not used in any future analyses. This left a final sample of 1,026 at wave 1 and 556 in wave 2; 14 individuals were removed from wave 1 and only 8 of the total 14 made it to wave 2 and were also removed. Although it could be argued that 26 is still a rather high distance, given the analyses techniques used within this study (robust methodology) these effects should be adequately controlled.

The correlations between all study variables are presented in Table 3. A quick review of the correlations supported many of the general hypothesized relationships. For instance, psychological health climate was significantly positively related to health knowledge/motivation, diet, and negatively related to body mass index. Additionally, psychological stress reduction climate was positively related to stress reduction knowledge/motivation, problem and emotion-focused coping, and psychological health.
Health climate

I began the model testing by testing the health climate model. Following the advice of Satorra and Bentler (2001) the data exhibited some nonnormality (Mardia coefficient > 20) therefore I utilized robust methodology that has been shown to help correct for nonnormality of data (Satorra et al, 2001). Confirmatory factor analysis was performed on the health climate scale revealing the hypothesized four-factor solution ($SB\chi^2 = 609.96$, $df = 72$, $CFI = .97$, $RMSEA = .09$) with one second-order factor, which is consistent with the safety climate literature.

Next, I conducted a structural equation model testing the proposed model (Figure 2). The model fit the data relatively well ($SB\chi^2 = 889.79$, $df = 197$, $CFI = .92$, $RMSEA = .09$). The LeGrange Multiplier test indicated that the highest suggested additional path was between health knowledge and motivation. Given that these two constructs have a .7 correlation this is not surprising. Although this path was suggested, it was not added as the study was focused on applying the safety climate framework to these climate foci and given that previous research did not specify this path (Christiansen et al., 2009) it was not added to the model. These results provide initial evidence that the proposed model is a good representation of the relationships between the study variables (all results for the health climate model are presented in Table 4).

Turning to the specific hypotheses, the data were partially supportive of the hypothesized relationships. Specifically, hypothesis 1a, which hypothesized a positive relationship between psychological health climate and health knowledge ($B = .20, SE = .04, t = 4.66, p < .05$) was supported. Additionally, hypothesis 1b, which
hypothesized a positive relationship between psychological health climate and health motivation ($B = .32, SE = .17, t = 1.91, p = .05$) was also supported, although marginally so. These hypotheses support the idea that individuals with greater psychological health climate have increased health knowledge and motivation.

Hypothesis 2a that hypothesized a relationship between health knowledge and exercise behaviors ($B = .10, SE = .04, t = 2.53, p < .05$) was supported. Hypothesis 2b that hypothesized a relationship between health knowledge and healthy diet ($B = .08, SE = .02, t = 3.35, p < .05$) was also supported. These findings support the notion that individuals with greater levels of health knowledge tend to exercise and eat better than those with low health knowledge.

Hypothesis 3a that hypothesized a relationship between health motivation and exercise behaviors ($B = .05, SE = .00, t = 32.29, p < .05$) was supported. Hypothesis 3b that hypothesized a relationship between health motivation and healthy diet ($B = .04, SE = .02, t = 1.65, p > .05$) was not supported. These findings highlight that health motivation was associated with increased exercise behaviors, but not improved healthy eating.

Turning to the first set of mediation tests, the results were somewhat supportive of the mediating effect of health knowledge/motivation on the relationship between psychological health climate and healthy diet and exercise. Specifically, hypothesis 4a that hypothesized a mediating effect of health motivation on the relationship between psychological health climate and exercise behaviors ($indirect = .02, SE = .01, t = 1.93, p = .05$) was supported. Hypothesis 4b that hypothesized a mediating effect of health knowledge on the relationship between
psychological health climate and exercise behaviors \((indirect = .02, SE = .01, t = 2.19, p < .05)\) was also supported. Hypothesis 4c that hypothesized a mediating effect of health motivation on the relationship between psychological health climate and healthy diet \((indirect = .01, SE = .01, t = 1.89, p = .06)\) was marginally supported. Lastly, hypothesis 4d that hypothesized the mediating effect of health knowledge on the relationship between psychological health climate and healthy diet \((indirect = .02, SE = .00, t = 2.68, p < .05)\) was supported. These findings highlight the important role that health knowledge/motivation play in the relationship between psychological health climate and healthy behaviors.

The last set of main effect hypotheses investigated effect of diet and exercise on body mass index. Specifically, hypothesis 5a that hypothesized a negative relationship between exercise behaviors and body mass index \((B = -1.77, SE = .34, t = -5.12, p < .05)\) was supported. Additionally, hypothesis 5b that hypothesized a negative relationship between healthy diet and body mass index \((B = -1.80, SE = .58, t = -3.09, p < .05)\) was also supported. These findings again highlight the importance of healthy behaviors in an individual’s body mass index.

The second set of mediation hypotheses concerned the mediating effect of healthy diet and exercise on the relationship between health knowledge/motivation and BMI. Specifically, hypothesis 6a that hypothesized a mediating effect of exercise behaviors on the relationship between health knowledge and body mass index \((indirect = -.18 SE = .08, t = -2.21, p < .05)\) was supported. Hypothesis 6b that hypothesized a mediating effect of exercise behaviors on the relationship between health motivation and body mass index \((indirect = -.09, SE = .02, t = -5.21, p < .05)\)
was also supported. Hypothesis 6c that hypothesized a mediating effect of healthy diet on the relationship between health knowledge and body mass index \((indirect = -.14, SE = .06, t = -2.23, p < .05)\) was also supported. Lastly, hypothesis 6d that hypothesized a mediating effect of healthy diet on the relationship between health motivation and body mass index \((indirect = -.07, SE = .04, t = -1.47, p > .05)\) was not supported. These findings bolster the importance of healthy behaviors on the relationship between health knowledge/motivation and body mass index, but they also create new questions with the null finding for the mediating role of healthy diet on the relationship between health motivation and body mass index.

The last set of hypotheses concerned the three-path mediation between psychological health climate, health knowledge/motivation, healthy diet and exercise, and BMI. Specifically, hypothesis 7a that hypothesized the mediating effects of health knowledge and exercise behaviors on the relationship between psychological health climate and body mass index \((indirect = -.04, SE = .02, t = -2.05, p < .05)\) was supported. Additionally, hypothesis 7b that hypothesized the mediating effects of health knowledge and healthy diet on the relationship between psychological health climate and body mass index \((indirect = -.03, SE = .01, t = -2.20, p < .05)\) was also supported. Turning to hypothesis 7c, that hypothesized the mediating effects of health motivation and exercise behaviors on the relationship between psychological health climate and body mass index \((indirect = -.03, SE = .02, t = -1.77, p > .05)\) was not supported. Lastly, hypothesis 7d that hypothesized the mediating effects of health motivation and healthy diet on the relationship between psychological health climate and body mass index \((indirect = -.02, SE = .02, t = -1.25, p > .05)\) was not supported.
Health climate moderators

BAS

Overall the results were mixed for the moderating effect of BAS on the relationship between health knowledge/motivation and healthy behaviors (all results presented in Table 5). Specifically, hypothesis 8a that hypothesized a moderating effect of BAS on the relationship between health knowledge and healthy diet (health knowledge $B = .10, SE = .03, t = 3.80, p < .05$; BAS $B = .01, SE = .04, t = .34, p > .05$; interaction $B = .00, SE = .04, t = .01, p > .05$) was not supported.

Hypothesis 8b that hypothesized the moderating effect of BAS on the relationship between health knowledge and exercise behaviors (Health knowledge $B = .16, SE = .04, t = 3.75, p < .05$; BAS $B = .13, SE = .07, t = 1.92, p > .05$; interaction $B = -.16, SE = .07, t = -2.39, p < .05$, $R^2 = .011$; see Figure 5) was significant, but not supported because the interaction was the opposite direction as predicted. Breaking down the interaction further, the slope of health knowledge predicting exercise behaviors was significantly different from zero except for at high levels of BAS (low $B = .24, SE = .05, t = 4.43, p < .05$; medium $B = .15, SE = .04, t = 3.61, p < .05$; high $B = .06, SE = .06, t = 1.02, p > .05$; see Table 6). These results show that for individuals with low levels of BAS the relationship between health knowledge and exercise behaviors is stronger than for individuals are high on BAS.

Hypothesis 8c that hypothesized a moderating effect of BAS on the relationship between health motivation and healthy diet (health motivation $B = .06,$
$SE = .02, t = 2.70, p < .05; BAS B = .01, SE = .04, t = .23, p > .05; interaction B = -.01, SE = .04, t = .34, p > .05$) was not supported.

Hypothesis 8d that hypothesized a moderating effect of BAS on the relationship between health motivation and exercise (health motivation $B = .15, SE = .04, t = 4.17, p < .05; BAS B = .11, SE = .07, t = 1.68, p > .05; interaction B = -.21, SE = .06, t = -3.34, p < .05, R^2 = .021; see Figure 6) was significant, but not supported because the interaction was the opposite direction as predicted. Breaking down the interaction further, the slope of health motivation predicting exercise behaviors was significantly different from zero except for at high levels of BAS (low $B = .25, SE = .05, t = 5.38, p < .05$; medium $B = .13, SE = .04, t = 3.53, p < .05$; high $B = .01, SE = .06, t = .22, p > .05$; See Table 7). These results show that for individuals with low levels of BAS the relationship between health motivation and exercise behaviors is stronger than for individuals are high on BAS.

**BIS**

Overall the results were somewhat poor for hypothesis 9a-d (all results presented in Table 6). Specifically, hypothesis 9a that hypothesized a moderating effect of BIS on the relationship between health knowledge and healthy diet (health knowledge $B = .10, SE = .03, t = 3.69, p < .05; BIS B = -.05, SE = .05, t = -1.07, p > .05$; interaction $B = .05, SE = .05, t = .99, p > .05$) was not supported.

Hypothesis 9b that hypothesized a moderating effect of BIS on the relationship between health knowledge and exercise behaviors (health knowledge $B = .16, SE = .04, t = 3.96, p < .05; BIS B = -.10, SE = .07, t = -1.42, p > .05$; interaction $B = -.16, SE = .08, t = -2.04, p < .05, R^2 = .008; see Figure 7) was significant, but not
supported because the interaction was the opposite direction as predicted. Breaking
down the interaction further, the slope of health knowledge predicting exercise
behaviors was significantly different from zero except at high levels of BIS (low $B = .24, SE = .06, t = 4.29, p < .05$; medium $B = .16, SE = .04, t = 3.83, p < .05$; high $B = .07, SE = .06, t = 1.25, p > .05$; See Table 9). The findings reveal that individuals who are
low on BIS have a stronger relationship between health knowledge and exercise for
individuals with high levels of BIS.

Hypothesis 9c that hypothesized the moderating effect of BIS on the
relationship between health motivation and healthy diet (health motivation $B = .06, SE = .02, t = 2.57, p < .05$; BIS $B = -.05, SE = .04, t = -1.10, p > .05$; interaction $B = -.03, SE = .04, t = -.66, p > .05$) was not supported.

Hypothesis 9d that specified the moderating effect of BIS on the relationship
between health motivation and exercise behaviors (health motivation $B = .16, SE = .04, t = 4.32, p < .05$; BIS $B = -.10, SE = .07, t = -1.35, p > .05$; interaction $B = -.13, SE = .07, t = -1.84, p > .05$) was not supported. Although it should be noted that the
interaction was trending on significant and graphing the results revealed the same
pattern as hypothesis 9b.

**Physical demands**

The results were not supportive of the moderating effect of physical
demands on the relationship between psychological health climate and health
knowledge/motivation or hypotheses 10a-b (all results presented in Table 10).
Specifically, hypothesis 10a that hypothesized a moderating effect of physical
exposure on the relationship between psychological health climate and health
knowledge (health climate $B = .14, SE = .03, t = 5.12, p < .05$; physical exposure $B = -.09, SE = .05, t = -1.73, p > .05$; interaction $B = .03, SE = .04, t = .74, p > .05$) was not supported.

Additionally, hypothesis 10b that hypothesized a moderating effect of physical exposure on the relationship between psychological health climate and health motivation (health climate $B = -.15, SE = .03, t = 4.67, p < .05$; physical exposure $B = .04, SE = .06, t = .61, p > .05$; interaction $B = -.01, SE = .04, t = -.19, p > .05$) was also not supported.

**Stress reduction climate**

The first step was running a confirmatory factor analysis on the stress reduction climate in order to understand its factor structure. Results revealed a four-factor solution ($SB\chi^2 = 657.02, df = 72, CFI = .97, RMSEA = .09$) with one second-order factor, which is consistent with the safety climate literature (and the findings from the health climate scale).

In order to test the hypotheses, I conducted a structural equation model testing the proposed model (*Figure 3*). The model fit the data relatively well ($SB\chi^2 = 899.03$ $df = 239, CFI = .93, RMSEA = .08$). Following the findings from the health climate model, the LeGrange Multiplier test indicated that the highest suggested path was between stress reduction knowledge and motivation. Although the correlation between these two constructs was lower than the health foci model (.7 compared to .38 in the stress reduction model). Again although it was suggested it was not added in order to fully test whether the safety climate framework was an adequate fit to the stress reduction climate model. These results provide initial
evidence that the proposed model is a good representation of the relationships between the study variables.

Overall the first hypotheses were supported (all results presented in Table 11). Specifically, hypothesis 11a that hypothesized a positive relationship between psychological stress reduction climate and stress reduction knowledge ($B = .54, SE = .06, t = 8.81, p < .05$) was supported. Additionally hypothesis 11b that hypothesized a positive relationship between psychology stress reduction climate and stress reduction motivation ($B = .33, SE = .07, t = 4.65, p < .05$) was also supported. These results help support the notion that psychological stress reduction climate is associated with increased stress reduction knowledge and motivation.

Turning to the relationship between stress reduction knowledge/motivation and coping behaviors, the data was somewhat supportive of the hypotheses. Specifically, hypothesis 12a that hypothesized a relationship between stress reduction knowledge and problem-focused coping behaviors ($B = .11, SE = .02, t = 5.73, p < .05$) was supported. Regarding hypothesis 12b that hypothesized a relationship between stress reduction knowledge and emotion-focused coping behaviors ($B = .01, SE = .02, t = .40, p > .05$) was not supported. Turning to hypothesis 12c, that hypothesized a relationship between stress reduction motivation and problem-focused coping ($B = .08, SE = .02, t = 4.07, p < .05$) was supported. Additionally, hypothesis 12d that specified a relationship between stress reduction motivation and emotion-focused coping behaviors ($B = .04, SE = .02, t = 2.24, p < .05$) was also supported. The results generally supported the notion that stress reduction knowledge and motivation were associated with increased problem
and emotion-focused coping, with the exception of stress reduction knowledge and emotion-focused coping.

Mixed results were obtained for the first set of meditational hypotheses. Specifically, hypothesis 14a that hypothesized a mediating effect of stress reduction motivation on the relationship between psychological stress reduction climate and problem-focused coping (indirect = .03, SE = .01, t = 3.05, p < .05) was supported. Additionally, hypothesis 14b that hypothesized a mediating effect of stress reduction knowledge on the relationship between psychological stress reduction climate and problem-focused coping (indirect = .06, SE = .01, t = 4.69, p < .05) was supported. Turning to hypothesis 14c, that hypothesized a mediating effect of stress reduction motivation on the relationship between psychological stress reduction climate and emotion-focused coping behaviors (indirect = .01, SE = .01, t = 1.84, p > .05) was not supported. Lastly, hypothesis 14d that hypothesized a mediating effect for stress reduction knowledge on the relationship between psychological stress reduction climate and emotion-focused coping behaviors (indirect = .00, SE = .01, t = .49, p > .05) was not supported. These results suggest that while stress reduction knowledge and motivation are significant mediators of the relationship between psychological stress reduction climate and problem-focused coping, they were not on the relationship between psychological stress reduction climate and emotion-focused coping.

The last sets of main effect hypotheses were all fully supported. Specifically, hypothesis 15a that hypothesized a main effect of problem-focused coping behaviors on psychological well-being (B = .14, SE = .04, t = 3.64, p < .05) was
supported. Additionally, hypothesis 15b that hypothesized a main effect of problem-focused coping behaviors on DSM symptomatology ($B = -0.29, SE = 0.04, t = -7.38, p < 0.05$) was also supported. Turning to hypothesis 15c that hypothesized a relationship between emotion-focused coping and psychological well-being ($B = 0.47, SE = 0.04, t = 10.53, p < 0.05$) it was also supported. Lastly, hypothesis 15d that hypothesized a relationship between emotion-focused coping and DSM symptomatology ($B = 0.22, SE = 0.04, t = 4.81, p < 0.05$) was significant, but in the effect was in the opposite direction. The results indicate that problem-focused coping is positively associated with psychological well-being and negatively associated with DSM V symptomatology, while emotion-focused coping is positively associated with psychological well-being, but also interesting positively associated with DSM V symptomatology both within the structural equation model and within the correlation matrices (Table 3), thus indicating that the effect was not the result of suppression.

The second set of meditational hypotheses concerned problem and emotion-focused coping behaviors as mediators of the relationship between stress reduction knowledge/motivation and psychological well-being. Beginning with hypothesis 16a that hypothesized a mediating effect of problem-focused coping on the relationship between stress reduction knowledge and psychological well-being ($indirect = 0.01, SE = 0.00, t = 2.95, p < 0.05$) was supported. Hypothesis 16b that hypothesized a mediating effect of problem-focused coping on the relationship between stress reduction motivation and psychological well-being ($indirect = 0.01, SE = 0.00, t = 2.63, p < 0.05$) was also supported. Hypothesis 16c that hypothesized a mediating effect of emotion-focused coping on the relationship between stress...
reduction knowledge and psychological well-being \((indirect = .00, SE = .01, t = .49, p > .05)\) was not supported. Lastly, hypothesis 16d that hypothesized a mediating effect of emotion-focused coping on the relationship between stress reduction motivation and psychological well-being \((indirect = .02, SE = .01, t = 1.97, p = .05)\) was supported, although it was marginally so. The results indicated that for the most part problem and emotion-focused coping served as mediators of the relationship between stress reduction knowledge/motivation and psychological well-being, with the exclusion of emotion-focused coping on the relationship between stress reduction knowledge and psychological well-being.

The next set of meditational hypotheses concerned problem and emotion-focused coping and as mediators of the relationship between coping and DSM symptomatology. Beginning with 16e that hypothesized a mediating effect of problem-focused coping on the relationship between stress reduction knowledge and DSM symptomatology \((indirect = -.03, SE = .01, t = -4.38, p < .05)\) was supported. Hypothesis 16f that hypothesized a mediation effect of problem-focused coping on the relationship between stress reduction motivation and DSM symptomatology \((indirect = -.02, SE = .01, t = -3.50, p < .05)\) was also supported. Hypothesis 16g that hypothesized a mediating effect of emotion-focused coping on the relationship between stress reduction knowledge and DSM symptomatology \((indirect = .00, SE < .01, t = .50, p > .05)\) was not supported. Lastly, hypothesis 16h that hypothesized a mediating effect of emotion-focused coping on the relationship between stress reduction motivation and DSM symptomatology \((indirect = .01, SE = .00, t = 2.30, p < .05)\) was significant, but in opposite as hypothesized direction. Although the results
were mixed, there was evidence found for the mediating effect of problem-focused coping on the relationship between stress reduction knowledge/motivation and DSM V symptomatology, while there was decidedly mixed evidence for the mediating effect of emotion-focused coping.

The next set of meditational hypotheses concerned the three-path mediation between psychological stress reduction climate, stress reduction knowledge/motivation, coping behaviors, and psychological well-being. Hypothesis 17a that concerned the mediating effect of stress reduction knowledge and problem-focused coping behaviors on the relationship between psychological stress reduction climate and psychological well-being (indirect = .01, SE = .00, t = 2.81, p < .05) was supported. Hypothesis 17b that hypothesized the mediating effects of stress reduction motivation and problem-focused coping behaviors on the relationship between psychological stress reduction climate and psychological well-being (indirect = .01, SE = .00, t = 2.30, p < .05) was also supported. Hypothesis 17c that hypothesized the mediating effects of stress reduction knowledge and emotion-focused coping behaviors on the relationship between psychological stress reduction climate and psychological well-being (indirect = .00, SE = .00, t = .50, p > .05) was not supported. Lastly, hypothesis 17d that hypothesized the mediating effects of stress reduction motivation and emotion-focused coping behaviors on the relationship between psychological stress reduction climate and psychological well-being (indirect = .01, SE = .00, t = 1.82, p > .05) was also not supported. Again the results regarding the mediating effect of problem-focused coping and stress reduction knowledge/motivation on the relationship between psychological stress
reduction climate and psychological well-being were all significant, while the paths that included emotion-focused coping were not.

The final set of meditational hypotheses concerned the three-path mediation between psychological stress reduction climate, stress reduction knowledge/motivation, coping behaviors, and DSM symptomatology. Hypothesis 17d that hypothesized the mediating effects of stress reduction knowledge and problem-focused coping behaviors on the relationship between psychological stress reduction climate and DSM symptomatology ($indirect = -.02, SE = .00, t = -3.94, p < .05$) was supported. Hypothesis 17e that hypothesized the mediating effects of stress reduction motivation and problem-focused coping behaviors on the relationship between psychological stress reduction climate and DSM symptomatology ($indirect = -.01, SE = .00, t = -2.81, p < .05$) was also supported. Hypothesis 17f that hypothesized the mediating effects of stress reduction knowledge and emotion-focused coping behaviors on the relationship between psychological stress reduction climate and DSM symptomatology ($indirect = .00, SE = .00, t = .50, p > .05$) was not supported. Lastly, hypothesis 17g that hypothesized the mediating effects of stress reduction motivation and emotion-focused coping behaviors on the relationship between psychological stress reduction climate and DSM symptomatology ($indirect = .01, SE = .00, t = 1.75, p > .05$) was also not supported. Consistent with previous findings while there was a significant three-path mediation for stress reduction knowledge/motivation and problem-focused coping on the relationship between psychological stress reduction climate and DSM symptomatology.
V symptomatology, the hypotheses that included emotion-focused coping were not significant.

**Stress reduction climate moderators**

**BAS**

Overall the results were negative for the moderating effect of BAS on the relationship between stress reduction knowledge/motivation and coping behaviors (all results are presented in Table 12). Specifically, hypothesis 18a that hypothesized a moderating effect of BAS on the relationship between stress reduction knowledge and problem-focused coping behaviors (stress reduction knowledge $B = .16, SE = .02, t = 7.48, p < .05; BAS B = .35, SE = .05, t = 7.32, p < .05; interaction B = -.06, SE = .04, t = -1.61, p > .05) was not supported.

Hypothesis 18b that hypothesized BAS moderating the relationship between stress reduction knowledge and emotion-focused coping behaviors (stress reduction knowledge $B = .03, SE = .01, t = 1.35, p > .05; BAS B = .17, SE = .04, t = 4.03, p < .05; interaction B = .01, SE = .03, t = .41, p > .05) was also not supported.

Hypothesis 18c that hypothesized a moderating effect of BAS on the relationship between stress reduction motivation and problem-focused coping behaviors (stress reduction motivation $B = .15, SE = .03, t = 5.47, p < .05; BAS B = .35, SE = .05, t = 7.16, p < .05; interaction B = -.08, SE = .05, t = -1.73, p > .05) was also not supported.

Hypothesis 18d that hypothesized BAS moderating the relationship between stress reduction motivation and emotion-focused coping behaviors (stress
reduction motivation $B = .06, SE = .03, t = 2.20, p < .05$; BAS $B = .16, SE = .04, t = 3.92, p < .05$; interaction $B = -.02, SE = .04, t = -.45, p > .05$) was also not supported.

**BIS**

Overall the results were again not supportive for the moderating effect of BIS on the relationship between stress reduction knowledge/motivation and coping behaviors (all results are presented in Table 13). Specifically, hypothesis 19a that hypothesized the moderating effect of BIS on the relationship between stress reduction knowledge and problem-focused coping behaviors (stress reduction knowledge $B = .19, SE = .02, t = 8.31, p < .05$; BIS $B = -.06, SE = .05, t = -1.16, p > .05$; interaction $B = .01, SE = .04, t = .15, p > .05$) was not supported.

Hypothesis 19b that hypothesized a moderating effect of BIS on the relationship between stress reduction knowledge and emotion-focused coping behaviors (stress reduction knowledge $B = .04, SE = .02, t = 2.15, p < .05$; BIS $B = .01, SE = .05, t = .29, p > .05$; interaction $B = -.01, SE = .03, t = -.19, p > .05$) was also not supported.

Hypothesis 19c that hypothesized a moderating effect of BIS on the relationship between stress reduction motivation and problem-focused coping behaviors (stress reduction motivation $B = .18, SE = .03, t = 6.38, p < .05$; BIS $B = -.11, SE = .05, t = -1.91, p > .05$; interaction $B = -.10, SE = .05, t = -1.78, p > .05$) was also not supported.

Lastly, hypothesis 19d that hypothesized the moderating effect of BIS on the relationship between stress reduction motivation and emotion-focused coping behaviors (stress reduction motivation $B = .07, SE = .03, t = 2.86, p < .05$; BIS $B = .01,$
$SE = .05, t = .31, p > .05$; interaction $B = -.01, SE = .05, t = -.20, p > .05$) was also not supported.
CHAPTER EIGHT

DISCUSSION

This study sought to address the linking mechanisms by which health and stress climate affect employee outcomes. Looking at this question differently we see that it is one that has plagued researchers for quite some time. For instance, it has long been assumed that the .30 correlation between job satisfaction and job performance was low (Judge, Thoresen, Bono, & Patton, 2001), but as this research shows certain types of employee attitudes are not directly related to behavior. This study helps to elucidate the pathways through which these perceptions influence employee knowledge and motivation, which then lead to behavioral outcomes that then finally predict organizational outcomes. Although not all of the specific hypotheses were fully supported, there is evidence to suggest that the majority of the framework was supported by the results. There seemed to be one variable or construct in each of the models that contradicted the hypotheses. Overall these results support the application of the safety climate framework to other employee well-being focused climate measures.

Health climate model

Overall the fit indices indicated that the data fit the proposed model reasonably well. This can be considered general support for the specific model proposed in Figure 2. Beginning with the first hypotheses, psychological health climate was positively related to both health knowledge and motivation. This confirms earlier research highlighting how a positive climate can strengthen employee's knowledge through communication and motivation through norms.
within the workplace (Morrison et al., 1997; Neal et al., 2000). These results indicate that at least the first part of the proposed model follow the paths laid out by safety climate research.

Additionally, health knowledge was significantly positively related to both exercise and healthy diet. This follows the logic that if individuals are knowledgeable about nutrition and the benefits of exercise they are more likely to engage in them, confirming my hypothesis. Turning to health motivation while it was significantly positively related to exercise, it was not significantly related to healthy diet. While the findings again bolster the idea that having motivation to be healthy is associated with greater levels of exercise it was not associated with healthy diet.

One explanation for this effect may be the multitude of effects on diet. There are a multitude of influences on healthy eating. For instance, the Theory of Planned Behavior (TPB; Ajzen, 1991) asserts that individual attitudes, perceived behavioral control, and subjective norms all lead to intentions, which then predict behavior. What this framework demonstrates is that beyond motivation there are other influences that may constrain an individuals behavior. For instance, there are areas within the US known as “food deserts” with limited options to fresh fruits and vegetables (Larson, Story, & Nelson, 2009). Additionally, research has found that even the perception of lack of access leads to decreased consumption of fruits and vegetables (Caldwell, Miller Kobayahsi, Dubow, & Wytinck, 2009). One possible explanation for why there may be a link between knowledge and diet, but not motivation and diet may be that many individuals are motivated to improve their
health, but may not be knowledgeable in eating properly. Specifically, although it may be easier to engage in exercise behaviors such as walking, individuals may not be knowledgeable about what constitutes a healthy diet, thus leading to the non-significant relationship. In conclusion, these findings generally confirm the assertion by Campbell et al. (1993) who described the general drivers of performance as knowledge, skill, and motivation albeit except for the results with health motivation and healthy diet.

Turning to the mediating effect of health knowledge and motivation on the relationship between psychological health climate and exercise and healthy diet the results were mostly positive. Specifically, health knowledge was a significant mediator of the relationship between psychological health climate and exercise and healthy diet behavior. Additionally, while there was a significant mediating effect of health motivation, on the relationship between psychological health climate and exercise and diet behaviors, the results were marginal for both hypotheses. Although the results were only marginally significant there has been a continued discussion with psychology and generally all of science about the relative importance of a 5% type I error rate (Nickerson, 2000). Therefore although the mediating effect of health motivation on the relationship between psychological health climate and diet’s p-value was .06, does that one or two percent change in error rate completely nullify the results? So although the effect was marginal the results seem to support the notion that increased perceptions of climate related to health is associated with behavioral outcomes through the links of health knowledge and motivation. This is in line with both Campbell et al’s. (1993) theory
of job performance model, as well as the work within the safety climate literature (Christiansen et al., 2009) that specifies climate as a predictor of knowledge and motivation. It also further bolsters the idea that employee attitudes or perceptions often do not directly influence behaviors but that behaviors are modified through employee attributes, in this case knowledge and motivation.

The last set of hypothesized main effects was the influence of healthy behaviors on BMI. The results showed that both exercise behaviors and healthy diet were negatively related to body mass index. These results are in line with the previous discussion focusing around the two biggest drivers of obesity. Specifically, this finding provides evidence that individuals who engage in more frequent exercise and tend to eat healthier meals have on average lower body mass indexes than individuals who do not report engaging in these behaviors.

Turning to the mediation hypotheses that specified exercise and diet as the link between health knowledge and motivation and body mass index, the results were positive. Specifically, all of the mediation paths were supported except for the mediating effect of healthy diet on the relationship between health motivation and body mass index. This again shows strong support for the notion that individual attitudes are related to reduced body mass. Specifically, the mechanism through which health knowledge and motivation have an influence on body mass index is through their effect on exercise and healthy diet behaviors. There was one exception of healthy diet not significantly mediating the relationship between health motivation and body mass index but this was caused by the non-significant relationship between health motivation and healthy diet. As discussed above, this
may be caused by the multitude of influences that are out of an individual’s control in relation to diet. In conclusion, these results highlight the important link of behavior between the relationship between individual attributes and objective body measurements, in this case the link being healthy behaviors.

The last set of relationships tested was the three-path mediation of psychological health climate to health knowledge/motivation to exercise and diet behaviors and then finally to body mass index. This was really the true test of the proposed model. Although the fit indices indicated that the model fit the data relatively well these indices do not take into account magnitude of effect sizes. Because of this, although we can be reasonably certain that the pattern of relationships tested fits the data reasonably well, we cannot know what the magnitude of these relationships may be.

Overall the results were mixed but generally in line with the previous findings. There was significant three-path mediation when health knowledge was included as a pathway, but the mediation was non-significant when health motivation was the pathway. Specifically, the data supported the hypotheses that psychological health climate exerts its influence on body mass index through health knowledge, which then leads to health behaviors and then to these objective body measurements. While this bolsters the theory around the importance of health knowledge, it calls into question the relative importance of health motivation. One possible explanation may be that many individuals are motivated to improve their health. For instance, an employee may receive bad news from a doctor surrounding a medical condition or their general health and thus may be motivated to improve
their health. What may be lacking is a solid understanding of how to improve their health. Additionally, upon inspection of the correlation table (Table 3) one can see that while health motivation is related to health behaviors and body mass index it is less so than health motivation. Also, the correlation between health knowledge and motivation is rather high (.7). This may also indicate that when including the effect of health knowledge, the effect of health motivation may not be tied to these specific outcomes. Also, perhaps there may also be some level of response bias or impression management present. Because of the importance of physical health individuals may feel a normative pressure to indicate that they are motivated to improve their health, yet struggle to do so. Lastly, other types of relationships may be possible between knowledge and motivation. For instance, it could be that knowledge serves as a mediator between motivation and healthy behaviors. Overall, reasonable support was found for the safety climate framework applied to the health climate context. The main area of difference concerned the role of motivation, which seemed to play a lesser role in this context than in safety climate.

In conclusion to the overall health climate model, there was moderate support for the application of the safety climate framework. Specifically, there was strong support for the association between psychological health climate and health knowledge and motivation. Additionally, there was also strong evidence that health knowledge mediated the effect of psychological health climate to healthy behaviors and ultimately body mass index. Although the findings surrounding the relationship between health motivation and healthy nutrition were non-significant they may help to inform a new set of questions that future research can work to address.
Health climate moderators

Overall the results were not supportive of the hypothesized moderating effect of BAS on the relationship between health knowledge/motivation and diet and exercise. Specifically, although there was a significant interaction of BAS on the relationship between health knowledge/motivation and exercise behaviors it was in the opposite direction as hypothesized. The results showed that at high levels of BAS there was a non-significant relationship between health knowledge and exercise behaviors, but as BAS decreased the relationship between health knowledge and exercise behaviors increased. This relationship also held true for the moderating effect of BAS on the relationship between health motivation and exercise behaviors. This may be because if individuals have a high level of positive activation they may not need high levels of knowledge or motivation in order to engage in exercise behaviors. Specifically, individuals with high levels of BAS even with low levels of motivation and knowledge engaged in exercise behaviors. It should also be noted that at high levels of health knowledge and motivation individuals at all levels of BAS exercised at nearly the same amount. This points to the important role of health knowledge/motivation for individuals with low levels of BAS, while it also shows that these attributes may not be as important if an individual has high levels of BAS.

Turning to the moderating effect of BIS on the relationship between health knowledge/motivation and healthy behaviors, the results were also not supportive of the hypothesized relationships. Specifically, out of the four tested interactions only one was significant and it was in the opposite direction as hypothesized. Additionally, BIS did moderate the relationship between health knowledge and
exercise behaviors. Although the slopes followed the same general pattern as BAS (i.e., higher levels of BIS was associated with a weaker relationship between health knowledge and exercise behaviors) there was a cross-over interaction where although individuals at low levels of health knowledge with high levels of BIS had the greatest levels of exercise behaviors the relationship was inverted at high levels of health knowledge where individuals with the lowest levels of BIS had the highest levels of exercise behaviors.

Although most of the proposed moderating effects were not significant there were interesting findings in regards to significant interaction. Additionally, it should also be noted that the moderating effect of BIS on the relationship between health motivation and exercise was trending significant and after conducting some exploratory analysis revealed the same pattern of relationships for the moderating effect of BIS on the relationship between health knowledge and exercise behaviors although as noted it was only trending significance.

The last moderator investigated was physical exposure and its effect on the relationship between psychological health climate and health knowledge/motivation. I hypothesized that jobs with greater levels of physical exposure would have stronger relationships between psychological health climate and health knowledge/motivation, but this was not supported within the data. Specifically, none of the hypothesized moderating effects of physical exposure were significant. Although there is no research examining occupational influences on the climate linking mechanisms these results highlight that at least in the case of health climate the level of physical exposure is not important in determining the
relationship between psychological health climate and health knowledge and motivation. It may be that regardless of occupation there is a relationship between psychological health climate and health knowledge and motivation as predicted by Neal and Griffin (2000). There was a slight negative correlation between (-.13; Table 3) between physical exposure and psychological health climate, so although there was no significant moderating effect, it does seem that individuals with greater levels of physical exposure in their jobs report less climate for health. This indicates that although physical exposure was not a significant moderator, future research should examine the impact of occupational characteristics as there may be main effects not captured within this study, possibly by comparing research done across different industries.

In conclusion, there was limited evidence found that there are significant moderators of the climate linking model, at least with those investigated (BAS, BIS, & physical exposure). Although the significant findings for BAS moderating the relationship between health knowledge/motivation and exercise behaviors point out the fact that if individuals are high in BAS their level of knowledge and motivation did not seem to predict exercise behaviors. Additionally, there was little evidence that BIS impacted the relationship between health knowledge and motivation and exercise behaviors, showing a relationship similar to that of BAS except that for at high levels of health knowledge those with low BIS engaged in more exercise behaviors than those with high levels of BIS. Overall though, beyond the small number of supported hypotheses there was no evidence that BAS or BIS moderated the relationship between health knowledge and motivation and diet.
behavior. Lastly, there was no support for physical exposure as a moderator of the relationship between psychological health climate and health knowledge or motivation.

**Stress reduction climate model**

Overall, as with the health climate model, the fit indices for the stress reduction climate model indicated that the hypothesized model fit the data reasonably well. Again this provides general support that the relationships specified reasonably match those found within the data. Although as noted with the health climate discussion, this does not provide us with effect sizes, but simply says that the proposed relationships between the variables presented was adequately similar to those found within the data.

Turning to the specific results, psychological stress reduction climate was related to increased stress reduction knowledge and motivation. This finding is in line with the safety climate results (Neal et al., 2000) and the results from the health climate model. It also provides evidence that psychological climate is associated with increased employee knowledge and motivation for that strategic priority. This is a strong finding that gives support to idea that by building a positive climate around a strategic workplace priority it may cause an increase in knowledge and motivation around that priority.

Examining the relationship between stress reduction knowledge and motivation and coping behaviors the results were positive overall. Stress reduction knowledge was significantly positively related to problem-focused coping behaviors, although while it was not significantly related to emotion-focused coping.
Health motivation on the other hand was significantly positively related to both problem and emotion-focused coping behaviors. These results again support the general notion that individual attributes such as knowledge and motivation are associated with behavioral outcomes, as hypothesized. Additionally, these results are also in line with safety climate research (Neal & Griffin, 2000), Campbel et al.’s (1993) theory of job performance, and the results from the health climate model. These results underscore the importance of individual attributes in predicting behavioral outcomes. As to why knowledge was not related to emotion-focused coping, there are a few possible reasons. One may be a negative evaluation of emotion-focused coping by employees. It appears that individuals who believe they have the skills to effectively cope with stressors within the workplace do not engage in emotion-focused coping behaviors. The type of stressors that individuals face within the workplace may in part, explain this. For instance, as has been shown from the interactionist perspective (Lazarus, 1984; O'Brien & DeLongis, 1996), matching the coping mechanisms to the type of stressor faced is key to reducing the amount of stress experienced. It could be that individuals are faced with stressors that they have some control over and therefore engage in more problem-focused coping behaviors. Looking to what some of the top workplace stressors are the APA Stress in the workplace survey (APA, 2012) named the top-five workplace stress factors in descending order as low salaries, lack of opportunity for growth or to advance, too heavy of a workload, long hours, and uncertain or undefined job expectations. Although some of the stressors may not be under employee control, certainly parts of these stressors could be improved by a problem-focused approach.
Unfortunately, because of the way respondents were asked to respond to the coping measure (as behaviors they tend to engage in) it is impossible to know what types of stressors they are responding to at work. Future research should take a finer grained approach by investigating which workplace stressors employees are coping with in order to understand the complex interaction between coping and the stressors.

In regards to the mediating effect of stress reduction knowledge/motivation on the relationship between stress reduction climate and problem and emotion-focused coping behaviors mixed results were obtained. Specifically, while stress reduction knowledge and motivation were significant mediators of the relationship between psychological stress reduction climate and problem-focused coping, they did not serve as significant mediators of the relationship between psychological stress reduction climate and emotion-focused coping behaviors. One explanation for the results is the non-significant relationship between stress reduction knowledge and emotion-focused coping, but as to why there was no mediating effect of stress reduction motivation on the relationship between psychological stress reduction climate and emotion-focused coping may follow a similar reasoning. Specifically, it may be due to the type of stressors faced at work (i.e., control over stressors) and another may be the perceived inadequacy of emotion-focused coping to deal with workplace stressors. The other results highlight that the pathway through which psychological climate affects behavior is again through the individual attributes of knowledge and motivation, at least for problem-focused coping.
Turning to the last set of main effects, the relationship of problem and emotion-focused coping behaviors with psychological health, the results were mostly supportive of the hypothesized relationships. Specifically, problem-focused coping was significantly positive related to increased psychological well-being, while significantly negatively associated with DSM V symptomatology. These results support the transactional model of stress (Lazarus, 1984) and are in line with my hypotheses. Breaking it down a bit more, it appears that individuals who engage in more problem-focused coping have improved psychological health. The results for emotion-focused coping showed that it was associated with increased psychological well-being as expected, but that it was also associated with increased DSM V symptomatology. There are a couple of reasons why this may be the case. The first is that many of the items listed on the DSM V symptomatology measure could be sub-scales of a negative emotion-focused coping scale. Specifically, in the full COPE (Carver & Scheier, 1994) there are scales that measure use of alcohol as an emotion-focused coping behavior. Additionally, some of the activities listed within the DSM V measure include other things that could be considered emotion-focused coping behaviors such as drug use. Additionally, it should be noted that there is a slight (but non-significant) positive relationship between DSM V symptomatology and psychological well-being. This provides evidence that these two constructs are distinct.

There has also been a finding within the research literature that emotion-focused coping may not always be associated with positive psychological well-being (Austenfield & Stanton, 2004). Some researchers even concluded that one of the
most consistent findings within the coping literature was that emotion-focused coping was associated with psychological distress (Coyne & Racioppo, 2000). For instance, early research showed that emotion-focused coping was associated with increased somatic health status (Folkman, Lazarus, Guen, & DeLongis, 1986). Austenfield et al. (2004) conclude that one of the reasons for this negative effect may be the scales that are currently being used. The authors argue that because many researchers combine many different forms of emotion-focused coping, the positive effects of emotion-focused coping may be obscured (i.e., alcohol & positive reframing). This highlights the fact that there may exist both positive and negative forms of emotion-focused coping and by improving measurement devices it may be possible to disentangle these effects (i.e., having separate subscales for positive and negative emotion-focused coping styles). For instance, research by Worthington and Scherer (2004) found that using forgiveness, as an emotion-focused coping strategy was associated with improved health. Another possibility as to why emotion-focused coping may be associated with poor psychological outcomes is that researchers have discovered that individuals tend to prefer certain coping styles to others (Wright et al., 2015), meaning that there may be trait aspects to coping. Thus, it may be that certain individuals who prefer emotion-focused coping do so even with the more negative behavioral aspects such as drinking and using drugs. This also may help explain why emotion-focused coping was related to increased DSM V symptomatology.

The results were again mixed for the mediating effect of coping behaviors on the relationship between stress reduction knowledge/motivation and psychological
health. Overall the results generally supported the importance of problem-focused over emotion-focused coping behaviors. Specifically, problem-focused coping was a significant mediator of stress reduction/motivation and psychological health (both psychological well-being and DSM V symptomatology). These results indicate that individuals with high levels of stress reduction knowledge and/or motivation are more likely to engage in problem-focused coping, which in turn leads to improved psychological well-being and reduced DSM V symptomatology. Again, these results are explained by theories of job performance (Campbell et al., 1993), as well the safety climate literature (Neal et al., 2000). It appears that individual attributes such as knowledge and motivation are associated with increased behavior in regards to that target or priority, which then leads to the specific behavior. Unfortunately, the results were again not supportive of the mediating effect of emotion-focused coping behaviors. Specifically, emotion-focused coping was not a significant mediator of any of the four pathways tested on the relationship between stress reduction knowledge/motivation and psychological health. As previously discussed, this is not surprising given past research (Austenfield & Stanton, 2004). Therefore, these results again indicate that although emotion-focused coping was associated with psychological health as a main effect, it did not serve as a mediator of the relationship of stress reduction knowledge and motivation with psychological health.

The last set of mediation hypotheses was the three-path mediation of psychological stress reduction climate, to stress reduction knowledge/motivation, then to problem and emotion-focused coping behaviors, and finally to psychological
health. The results were similar to the findings from the previous hypotheses. Specifically, those three-path mediation hypotheses that included problem-focused coping as a mediator were significant. This means that psychological stress reduction climate exerts its influence on psychological health through the mediators of stress reduction knowledge and motivation then through problem-focused coping and finally to both psychological well-being and DSM V symptomatology. Therein this supports the use of the general safety climate framework applied to stress reduction climate, albeit using only problem-focused coping as one of the mediators and not emotion-focused. Again, the results were not supportive of the pathways that included emotion-focused coping as a mediator. It seems that although emotion-focused coping is a significant predictor of increased psychological well-being and increased DSM V symptomatology it does not serve as a mediator for the relationship between psychological stress reduction climate and psychological health.

In conclusion to the tests of the stress reduction climate model, there was general support for several of the hypotheses. Specifically, there was strong evidence to support the relationship between psychological stress reduction climate and stress reduction knowledge and motivation. This finding echoes the findings from safety and health climate and further illustrates the impact of a positive workplace climate on employee attributes. There was also strong evidence for the importance of problem-focused coping. Specifically, it served as a central connection to psychological health outcomes from psychological stress reduction climate and stress reduction knowledge and motivation. The findings also serve to support the
previous work done with psychosocial safety climate (Dollard et al., 2010). Although this model provides a different perspective on how a climate of support for psychological health operates, these research streams may be viewed in tandem as both contributing to the overall knowledge base in this area.

**Stress reduction climate moderators**

No evidence was found for the moderating effect of BAS on the relationship between stress reduction knowledge/motivation and coping behaviors. These findings indicate that BAS does not change the relationship between stress reduction knowledge/motivation and coping behaviors as hypothesized. It may be that regardless an employee’s level of positive activation stress reduction knowledge and motivation are associated with coping behaviors. Interestingly, although it was not predicted as such there was a strong positive relationship between BAS and problem and emotion-focused coping. It appears that individuals with higher levels of BAS are more likely than those who are lower to indicate that they tend to cope more often than those who do not. So while BAS did not moderate the relationship between stress reduction knowledge/motivation and coping behaviors it did explain a significant amount of variation in coping and thus is an important construct to include in further research.

Turning to the moderating effect of BIS on the relationship between stress reduction knowledge/motivation and coping behaviors, again there was no significant moderating effect for any of the hypotheses. These results support the conclusion that individual traits such as BAS and BIS do not significantly change the relationship between stress reduction knowledge/motivation and coping behaviors.
Additionally in contrast to BAS, BIS was not significantly related to either type of coping behavior. These findings highlight that BIS may not be an important individual characteristic to include in understanding coping behavior. Lastly, it may be worth noting that in terms of control variables, being older and being a female were positively related to problem-focused coping behaviors, while being older was negatively related to emotion-focused coping behaviors. It appears that as individuals age they engage in more problem-focused coping behaviors than when they are young (at least in this prospective sample). This is interesting to note in light of the findings that problem-focused coping behaviors were positively related to psychological health, while there was mixed results for emotion-focused coping.

**Limitations and future research**

Future research should explore measuring climate at the group level or organizational climate. This may provide additional insights into how climate functions both at the individual and group level. Although individual perceptions are the foundation of organizational climate and any effect is assumed to operate through the individual, investigating group level climate may help explain how these group level effects influence individual behavior beyond individual perceptions. Therefore although group-level climate would add an additional predictor, the order and structure of relationships would still be the same.

One limitation of this study was the lack of a full longitudinal design. Future researchers should consider using a full longitudinal design with both predictors and outcomes measured at both time periods. For instance, although the data set used within this study was two-wave ideally a four-wave study following the flow of
the model with similar measures at each time point would provide additional insights into how climate affects employee well-being. Specifically, a study with this design would provide stronger support for the directionality of the relationships. Given the prospective design, although it was an improvement over previous work, we cannot fully test the alternative model where relationships flow the opposite direction.

Another point of clarification concerns the high correlation between health and stress reduction climate measures. Although the models were tested separately the correlation between the two measures was high at .81. There may be an argument for including both of these models within the same framework, but that was not the focus of this research. Specifically, although there is significant overlap between the two climate constructs there are a couple of reasons why it does not affect the results. The first is that organizations that support health likely also support stress. If an organization has dedicated resources toward improving employee health than they may also be dedicating resources toward employee stress levels. Said another way, if an organization was significantly supporting health and not supporting stress this may be more unusual than at least some overlap between the two. Additionally, research by Munc et al. (2015) found that the climate constructs used within this study were indeed distinct, thus supporting the notion that the models should be tested separately. The other main reason why it does not affect the results is because it was not the focus of the study. The focus of this research is specifically on the application of the safety climate linking mechanism framework to health and stress reduction climate. Although there may
be conceptual overlap between the two constructs, it was beyond the scope of this study, future research should investigate the models together as there may be some interplay between the two models that is missed within this study design.

Another possible limitation of this study was the reliance on an Internet sample. There has been some discussion of this within the field (Landers & Behrend, 2015) and there seems to be somewhat of a divide about whether or not there is what some journals consider ‘serious limitations’ of these types of samples. There is an argument to be made about how the representativeness of the sample is closer to the true US adult population (much more so than a student sample), but others disagree and possibly fear that by using an online sample individuals are more likely to suspiciously respond or misrepresent aspects of their lives. No matter what the viewpoint, it is always important to replicate research especially with the current findings that question the stability of effect sizes across different studies within psychology (Open Science Collaboration, 2015).

Another limitation was the omission of one of the health motivation items. This error forced the construct to be measured as an observed variable instead of a latent one. Although modeling the construct as a latent variable may have reduced the error associated with the construct, it likely would not have had a large effect on the results. Additionally, the reliability of the scale indicated that the two items were highly related (.92).

Perhaps not so much a limitation, but advice for future researchers would be to explore the ambiguity surrounding the relationship between climate and knowledge and motivation. Although research does suggest that climate does cause
an increase in knowledge and motivation (Neal & Griffin, 2000), it does not fully explain if this is a consequence of a positive climate or whether having high levels of knowledge or motivation for a specific priority can cause a positive climate. For instance, the question can be asked is employee knowledge and motivation a direct consequence of a positive climate or do high levels of employee knowledge and motivation create a positive climate toward that specific priority? Although a definitive answer may not exist at this point, future research should work to more closely assess the relationship between these variables.

Another possible limitation was the exclusion of other behaviors that could be considered healthy or have an influence on employee health. For instance, smoking is associated with increased weight (Klesges, Meyers, Klesges, & LaVasque, 2009), as well as alcohol consumption (Wang, Lee, Manson, Buring, & Sesso, 2010). This study investigated positive behaviors, but as noted, abstaining from other behaviors may result in positive weight as well. In conclusion, although there are areas where future research may be required, this research significantly contributed to the organizational knowledge base around how psychological climate can affect two of the main drivers of employee physical health (i.e., diet and exercise).

Practical implications

There are a few important implications of this research for practice. The first is that organizations must be aware that simply supporting something does not mean that an employee will follow that behavior. Rather, organizations must be cautiously aware of how employees may be internalizing this emphasis. For instance, perhaps when developing a strategic priority around something it might
be wise to also include aspects that might increase employees’ knowledge and motivation regarding that behavior. Although the results do show that a positive climate is related to knowledge and motivation about that priority, maximizing this relationship may be important in order to predict behavior.

This research also helps to show how a low overall relationship between two variables may not necessarily mean they are not highly related. For example, health climate and body-mass index, do not seem to have a strong relationship but understanding how they are related can help to disentangle the effect a bit more to expose their relationship. Understanding these linking mechanisms can help organizations understand the process by which their efforts influence employee behavior. This can help organizations tailor their climates to focus on specific targets within the linking model, with the goal of increasing their impact.

Additionally, the effects of the moderating effect of BAS on the relationship between health knowledge/motivation and exercise highlight that health knowledge and motivation may be particularly important for individuals who are low in this personality construct. These findings highlight how although the climate linking model functions well overall, there are certain groups (individuals high/low in BAS) that may alter the form of their relationship. This information may be useful in designing targeted interventions to fully maximize the effect of knowledge and motivation. Although it should be noted that there was the finding of the moderating effect, the size was small, and it may be that the overall the differences are not large enough to warrant specific intervention use. Future research should work to replicate these results in order to more fully understand the relationship between
these variables. So while these effects were found within the current study, they should be utilized with caution as future research should help to confirm the results.

Another contribution is the finding around the importance of health knowledge. This was shown to be extremely important in predicting employee health and therefore should be a priority in any health related intervention. One other contribution is that when creating a stress reduction program to focus on problem-focused coping. Because of its strong relationship to psychological well-being there should be a special focus on problem-focused coping within any targeted stress reduction program in order to make it truly effective.

Lastly, one of the main contributions is that organizations do have the ability to experience significant cost savings through developing positive climates within their organization. As the previously cited research shows the cost of health insurance and the cost of mental health issues within the workplace is significant, but this dissertation shows that there are ways that employers can work to address these issues and experience cost savings through improved health. Although this study did not estimate the specific savings associated with improved health climate it did show that there was a strong relationship between health climate and body mass index. Future research should attempt to document the cost of savings related to improvements in health climate as a way to concretely show its value.

Conclusion

In conclusion this study significantly contributes to the literature of employee health and well-being. It has helped make clear some of the ways that employee perceptions of their environment affect their behavior. Specifically, there
is evidence to suggest that the framework used to connect safety climate to accidents and injuries is replicable across both health and stress reduction climate. Although there is further research necessary in this area in order to replicate and extend the results this represents a good first step necessary in order to understand this complex relationship. I urge future researchers to carry on the torch to further increase the knowledge in this area.
APPENDICES
# Appendix A

## Tables

Table 1: *Sample trimming information*

<table>
<thead>
<tr>
<th>Wave &amp; Version</th>
<th>Pass (%)</th>
<th>Fail (%)</th>
<th>Did not retry (after failing)</th>
<th>Total Attempts</th>
</tr>
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<tbody>
<tr>
<td>1,1</td>
<td>889 (58%)</td>
<td>696 (42%)</td>
<td>369 (53%)</td>
<td>1,585</td>
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<tr>
<td>1,2</td>
<td>151 (47%)</td>
<td>176 (53%)</td>
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<td>327</td>
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<tr>
<td>2,1</td>
<td>509 (78%)</td>
<td>151 (22%)</td>
<td>64 (42%)</td>
<td>660</td>
</tr>
<tr>
<td>2,2</td>
<td>55 (63%)</td>
<td>32 (37%)</td>
<td>N/A</td>
<td>87</td>
</tr>
</tbody>
</table>

*Note: Total Pass Wave 1 = 1,040, Total Pass Wave 2 = 564*
Table 2: Sample characteristics wave 1 & 2

<table>
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<tr>
<th>Demographic</th>
<th>Mean W1</th>
<th>Mean W2</th>
<th>Chi-Square (t-test)</th>
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<tr>
<td>Gender</td>
<td>1.49</td>
<td>1.52</td>
<td>2.66 df =1</td>
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<tr>
<td>Age</td>
<td>33.2</td>
<td>35.9</td>
<td>-1.71</td>
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<tr>
<td>Education</td>
<td>3.55</td>
<td>3.57</td>
<td>8.38 df =6</td>
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</tbody>
</table>

Note: Wave 1 N = 1,040, Wave 2 N = 564, * = p < .05, ** = p < .01. Age and gender were analyzed as chi-square while, age was analyzed using a paired t-test.
<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<td>1. Health Climate</td>
<td>4.27</td>
<td>1.49</td>
<td>(.95)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Stress Climate</td>
<td>4.01</td>
<td>1.51</td>
<td>.81**</td>
<td>(.97)</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>3. HC Motivation</td>
<td>5.80</td>
<td>.93</td>
<td>.22**</td>
<td>.15**</td>
<td>(.92)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. HC Knowledge</td>
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<td>.98</td>
<td>.27**</td>
<td>.21**</td>
<td>.70**</td>
<td>(.85)</td>
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<tr>
<td>5. ST Motivation</td>
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<td>.20**</td>
<td>.26**</td>
<td>.66**</td>
<td>.54**</td>
<td>(.72)</td>
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<td>1.20</td>
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<td>.46**</td>
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<td>7. Exercise</td>
<td>3.51</td>
<td>.85</td>
<td>.07</td>
<td>.09*</td>
<td>.12**</td>
<td>.16**</td>
<td>.13**</td>
<td>.17**</td>
<td>(.54)</td>
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<td>8. Diet</td>
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<td>.51</td>
<td>.11*</td>
<td>.11</td>
<td>.18*</td>
<td>.22**</td>
<td>.14**</td>
<td>.16**</td>
<td>.35**</td>
<td>(.72)</td>
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<tr>
<td>9. Problem-Focused Coping</td>
<td>3.08</td>
<td>.67</td>
<td>.13**</td>
<td>.17**</td>
<td>.26**</td>
<td>.26**</td>
<td>.31**</td>
<td>.34**</td>
<td>.22**</td>
<td>.23**</td>
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<tr>
<td>10. Emotion-Focused Coping</td>
<td>2.16</td>
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<td>.12*</td>
<td>.14**</td>
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<td>.10**</td>
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<td>.05</td>
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<tr>
<td>11. BMI</td>
<td>27.24</td>
<td>6.48</td>
<td>-.13**</td>
<td>-.10*</td>
<td>-.04</td>
<td>-.09</td>
<td>-.04</td>
<td>-.27**</td>
<td>-.25**</td>
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<tr>
<td>12. Psy W-B</td>
<td>4.82</td>
<td>.62</td>
<td>.18**</td>
<td>.22**</td>
<td>.10*</td>
<td>.14**</td>
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<td>.18**</td>
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<td>13. DSM-V</td>
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<td>.57</td>
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<td>-.19**</td>
<td>-.20**</td>
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<td>.10**</td>
<td>.09*</td>
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<td>-.16**</td>
<td>-.16**</td>
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<td>16. Physical Exposure</td>
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<td>.80</td>
<td>-.16**</td>
<td>-.10*</td>
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<td>.07</td>
<td>-.03</td>
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<td>17. Age</td>
<td>33.27</td>
<td>10.61</td>
<td>-.05</td>
<td>.32**</td>
<td>.32**</td>
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<td>18. Gender</td>
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<td>.18*</td>
<td>.18**</td>
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<td>.05</td>
<td>.05</td>
<td>.03</td>
<td>.05</td>
<td>-.01</td>
<td>.08</td>
<td>.13**</td>
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Note: * = p < .05, ** = p < .01. Diagonal = Cronbach's Alpha. HC = Health climate, ST = Stress reduction climate, PSY W-B = psychological well-being, BAS = Behavioral activation system, & BIS = Behavioral inhibition system.
Table 3 (cont.): Descriptive statistics for study all study variables (Continued)

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<th>Variable</th>
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<td>1. Health Climate</td>
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<td>3. HC Motivation</td>
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<td>4. HC Knowledge</td>
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<td>5. ST Motivation</td>
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<td>13. DSM-V</td>
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<td>.13*</td>
<td>.08</td>
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<td>.06</td>
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<td>.07</td>
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<td>.02</td>
<td>.05</td>
<td>-.20**</td>
<td>-.01</td>
<td>.01</td>
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</table>

Note: $N = 1,026$ (var 1-6, 14-15, 17-19) $N = 556$ (var 7-13, 16), * = $p < .05$, ** = $p < .01$.
Diagonal = Cronbach’s Alpha. HC = Health climate, ST = Stress reduction climate, PSY W-B = psychological well-being, BAS = Behavioral activation system, & BIS = Behavioral inhibition system.
Table 4: Path estimates for structural model of health climate

<table>
<thead>
<tr>
<th>Relations Tested</th>
<th>Hypothesis</th>
<th>Path (indirect effect)</th>
<th>SE (SE Med)</th>
<th>t-test (z)</th>
<th>Sig (Sobel)</th>
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</thead>
<tbody>
<tr>
<td>HC-Know</td>
<td>1a</td>
<td>.20</td>
<td>.04</td>
<td>4.66*</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>HC-Mot</td>
<td>1b</td>
<td>.32</td>
<td>.17</td>
<td>1.92</td>
<td>p = .05</td>
</tr>
<tr>
<td>Know-Ex</td>
<td>2a</td>
<td>.10</td>
<td>.04</td>
<td>2.53*</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Know-Diet</td>
<td>2b</td>
<td>.08</td>
<td>.02</td>
<td>3.35*</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Mot-Ex</td>
<td>3a</td>
<td>.05</td>
<td>.00</td>
<td>32.29*</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Mot-Diet</td>
<td>3b</td>
<td>.04</td>
<td>.02</td>
<td>1.65</td>
<td>&gt; .05</td>
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<td>HC-Mot-Ex</td>
<td>4a</td>
<td>(.02)</td>
<td>.01</td>
<td>1.93</td>
<td>(= .05)</td>
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<td>HC-Know-Ex</td>
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<td>(.02)</td>
<td>.01</td>
<td>2.19*</td>
<td>(&lt; .05)</td>
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<td>HC-Mot-Diet</td>
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<td>.01</td>
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<td>.00</td>
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<td>(&lt; .05)</td>
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<tr>
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<td>-1.77</td>
<td>.34</td>
<td>-5.12*</td>
<td>&lt; .05</td>
</tr>
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<td>.58</td>
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<td>&lt; .05</td>
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<td>.08</td>
<td>-2.21*</td>
<td>(&lt; .05)</td>
</tr>
<tr>
<td>Mot-Ex-BMI</td>
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<td>.02</td>
<td>-5.21*</td>
<td>(&lt; .05)</td>
</tr>
<tr>
<td>Know-Diet-BMI</td>
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<td>(-.14)</td>
<td>.06</td>
<td>-2.23*</td>
<td>(&lt; .05)</td>
</tr>
<tr>
<td>Mot-Diet-BMI</td>
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<td>.04</td>
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<tr>
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<td>.02</td>
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<td>(&lt; .05)</td>
</tr>
<tr>
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<td>7b</td>
<td>(-.03)</td>
<td>.01</td>
<td>-2.20*</td>
<td>(&lt; .05)</td>
</tr>
<tr>
<td>HC-Mot-Ex-BMI</td>
<td>7c</td>
<td>(-.03)</td>
<td>.02</td>
<td>-1.77</td>
<td>(&gt; .05)</td>
</tr>
<tr>
<td>HC-Mot-Diet-BMI</td>
<td>7d</td>
<td>(-.02)</td>
<td>.02</td>
<td>-1.25</td>
<td>(&gt; .05)</td>
</tr>
</tbody>
</table>

Note: N = 556, * = p < .05. HC = health climate, Mot = health motivation, Know = health knowledge, Ex = exercise, Diet = healthy diet, BMI= body mass index
Table 5: Interaction results between BAS on the relationship between health knowledge/motivation and healthy behaviors

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>B</th>
<th>SE</th>
<th>t</th>
<th>ΔR²</th>
<th>R²</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>.031*</td>
<td>.031*</td>
<td>.031*</td>
<td>3.80*</td>
<td></td>
<td></td>
<td>Healthy Diet</td>
</tr>
<tr>
<td>Know</td>
<td>.19</td>
<td>.10</td>
<td>.03</td>
<td>3.80*</td>
<td>.034*</td>
<td>.064</td>
<td>Healthy Diet</td>
</tr>
<tr>
<td>BAS</td>
<td>.02</td>
<td>.01</td>
<td>.04</td>
<td>.34</td>
<td>.034*</td>
<td>.064</td>
<td>Healthy Diet</td>
</tr>
<tr>
<td>Interaction</td>
<td>.01</td>
<td>.00</td>
<td>.04</td>
<td>.01</td>
<td>.000</td>
<td>.064</td>
<td>Healthy Diet</td>
</tr>
<tr>
<td>Controls</td>
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<td>.021*</td>
<td>.021*</td>
<td>3.75*</td>
<td>.040*</td>
<td>.061</td>
<td>Exercise</td>
</tr>
<tr>
<td>Know</td>
<td>.17</td>
<td>.16</td>
<td>.04</td>
<td>3.75*</td>
<td>.040*</td>
<td>.061</td>
<td>Exercise</td>
</tr>
<tr>
<td>BAS</td>
<td>.09</td>
<td>.13</td>
<td>.07</td>
<td>1.92</td>
<td>.040*</td>
<td>.061</td>
<td>Exercise</td>
</tr>
<tr>
<td>Interaction</td>
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<td>-.16</td>
<td>.07</td>
<td>-.239*</td>
<td>.011*</td>
<td>.072</td>
<td>Exercise</td>
</tr>
<tr>
<td>Controls</td>
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<td>.023*</td>
<td>.023*</td>
<td>2.70*</td>
<td>.017*</td>
<td>.041</td>
<td>Healthy Diet</td>
</tr>
<tr>
<td>Mot</td>
<td>.06</td>
<td>.06</td>
<td>.02</td>
<td>2.70*</td>
<td>.017*</td>
<td>.041</td>
<td>Healthy Diet</td>
</tr>
<tr>
<td>BAS</td>
<td>.01</td>
<td>.01</td>
<td>.04</td>
<td>.23</td>
<td>.017*</td>
<td>.041</td>
<td>Healthy Diet</td>
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<tr>
<td>Interaction</td>
<td>.01</td>
<td>.01</td>
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<td>.34</td>
<td>.000</td>
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<td>Healthy Diet</td>
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<tr>
<td>Controls</td>
<td>.024*</td>
<td>.024*</td>
<td>.024*</td>
<td>4.17*</td>
<td>.045*</td>
<td>.069</td>
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<tr>
<td>Mot</td>
<td>.20</td>
<td>.15</td>
<td>.04</td>
<td>4.17*</td>
<td>.045*</td>
<td>.069</td>
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<td>BAS</td>
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<td>.07</td>
<td>1.68</td>
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<td>.06</td>
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</table>

Note: N = 556, * = p < .05.
Controls used: age, gender, & education
Education was positively related to both healthy diet and exercise behaviors, while age and gender were not
Table 6: Simple slope analysis for health knowledge predicting exercise behaviors at varying levels of BAS

<table>
<thead>
<tr>
<th>B</th>
<th>STD Error</th>
<th>t-test</th>
<th>Level of BAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>.242</td>
<td>.055</td>
<td>4.43*</td>
<td>Low</td>
</tr>
<tr>
<td>.151</td>
<td>.042</td>
<td>3.61*</td>
<td>Medium</td>
</tr>
<tr>
<td>.059</td>
<td>.058</td>
<td>1.02</td>
<td>High</td>
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</tbody>
</table>

Note: N = 556, * = p < .05.
Table 7: Simple slope analysis for health motivation predicting exercise behaviors at varying levels of BAS

<table>
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<tr>
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<th>t-test</th>
<th>Level of BAS</th>
</tr>
</thead>
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<td>.249</td>
<td>.046</td>
<td>5.38*</td>
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<tr>
<td>.131</td>
<td>.037</td>
<td>3.53*</td>
<td>Medium</td>
</tr>
<tr>
<td>.013</td>
<td>.056</td>
<td>.22</td>
<td>High</td>
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</table>

*Note: N = 556, * = p < .05.*
Table 8: Interaction results between BIS on the relationship between health knowledge/motivation and healthy behaviors

<table>
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<th>β</th>
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<th>t</th>
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<th>R²</th>
<th>Outcome</th>
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<tbody>
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<td>Controls</td>
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<td>.039*</td>
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<td>.03</td>
<td>3.69*</td>
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<td>.074</td>
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<td>Exercise</td>
</tr>
<tr>
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<td>.16</td>
<td>.04</td>
<td>3.96*</td>
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<td>-.10</td>
<td>.07</td>
<td>-1.35</td>
<td>.043*</td>
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Note: N = 556, * = p < .05.

Controls used: age, gender, & education

Education was positively related to both healthy diet and exercise behaviors, while age and gender were not
Table 9: Simple slope analysis for health knowledge predicting exercise behaviors at varying levels of BIS

<table>
<thead>
<tr>
<th>B</th>
<th>STD Error</th>
<th>t-test</th>
<th>Level of BIS</th>
</tr>
</thead>
<tbody>
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<td>.243</td>
<td>.056</td>
<td>4.29*</td>
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</tr>
<tr>
<td>.159</td>
<td>.041</td>
<td>3.83*</td>
<td>Medium</td>
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<tr>
<td>.075</td>
<td>.060</td>
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*Note: N = 556, * = p < .05.
Table 10: *Interaction results between physical exposure on the relationship between psychological health climate and health knowledge/motivation*

<table>
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<th>$SE$</th>
<th>$t$</th>
<th>$\Delta R^2$</th>
<th>$R^2$</th>
<th>Outcome</th>
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<td>.14</td>
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<td>-.09</td>
<td>.05</td>
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<td>.03</td>
<td>.05</td>
<td>.74</td>
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<td>.200</td>
<td>Motivation</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>Variable</th>
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<th>$B$</th>
<th>$SE$</th>
<th>$t$</th>
<th>$\Delta R^2$</th>
<th>$R^2$</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td>.118</td>
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<td>Motivation</td>
</tr>
<tr>
<td>HC</td>
<td>.20</td>
<td>.15</td>
<td>.03</td>
<td>4.67*</td>
<td>.037*</td>
<td>.200</td>
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<td>-.01</td>
<td>.04</td>
<td>-.19</td>
<td>.000</td>
<td>.200</td>
<td>Motivation</td>
</tr>
</tbody>
</table>

*Note: $N = 556$, * = $p < .05$.

Controls used: Age, gender, & education

Age, gender, & education were all significantly positively related to health knowledge and motivation.
Table 11: Path estimates for structural model of stress reduction climate

<table>
<thead>
<tr>
<th>Relations Tested</th>
<th>Hypothesis</th>
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*Note: N = 556, * = p < .05. St = stress reduction climate, Mot = stress reduction motivation, Know = stress reduction knowledge, Em = emotion focused coping, Prb = problem focused coping, Psy= psychological well-being, DSM = DSM V symptomatology
Table 11 (cont.): *Path estimates for structural model of stress reduction climate (Continued)*

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*Note: N = 556, * = p < .05. St = stress reduction climate, Mot = stress reduction motivation, Know = stress reduction knowledge, Em = emotion focused coping, Prb = problem focused coping, Psy = psychological well-being, DSM = DSM V symptomatology*
Table 12: Interaction results between BAS on the relationship between stress knowledge/motivation and coping behaviors

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Note: N = 556, * = p < .05.
Controls used: age, gender, & education
Age and gender were positively related to problem-focused coping, while age was negatively related to emotion-focused coping.
Table 13: Interaction results between BIS on the relationship between stress knowledge/motivation and coping behaviors

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Note: N = 556, * = p < .05.
Controls used: age, gender, & education
Age and gender were positively related to problem-focused coping, while age was negatively related to emotion-focused coping.
Appendix B

Figures

Figure 1: General model linking climate to organizational outcomes
Figure 2: Hypothesized relationship between psychological health climate and health outcomes
Figure 3: Hypothesized relationship between psychological stress climate and psychological well-being
Figure 4: Mahalanobis distance histogram
Figure 5: The moderating effect of BAS on the relationship between health knowledge and exercise
Figure 6: The moderating effect of BAS on the relationship between health motivation and exercise
Figure 6: The moderating effect of BIS on the relationship between health knowledge and exercise
Appendix C
Study Hypotheses

Hypothesis 1a. Psychological health climate will be positively associated with health knowledge.

Hypothesis 1b. Psychological health climate will be positively associated with health motivation.

Hypothesis 2a. Health knowledge will be positively associated with exercise behaviors.

Hypothesis 2b. Health knowledge will be positively associated with healthy diet.

Hypothesis 3a. Health motivation will be positively associated with exercise behaviors.

Hypothesis 3b. Health motivation will be positively associated with healthy diet.

Hypothesis 4a. Health motivation will mediate the relationship between psychological health climate and exercise behaviors.

Hypothesis 4b. Health knowledge will mediate the relationship between psychological health climate and exercise behaviors.

Hypothesis 4c. Health motivation will mediate the relationship between psychological health climate and diet.
Hypothesis 4d. Health knowledge will mediate the relationship between psychological health climate and diet.

Hypothesis 5a. Exercise behaviors will be negatively associated with BMI.

Hypothesis 5b. Healthy nutrition will be negatively associated with BMI.

Hypothesis 6a. Exercise behaviors will mediate the relationship between health knowledge and BMI.

Hypothesis 6b. Exercise behaviors will mediate the relationship between health motivation and BMI.

Hypothesis 6c. Healthy nutrition will mediate the relationship between health knowledge and BMI.

Hypothesis 6d. Healthy nutrition will mediate the relationship between health motivation and BMI.

Hypothesis 7a. Health knowledge and exercise behaviors will mediate the relationship between psychological safety climate and BMI.

Hypothesis 7b. Health knowledge and healthy nutrition will mediate the relationship between psychological safety climate and BMI.

Hypothesis 7c. Health motivation and exercise behaviors will mediate the relationship between psychological safety climate and BMI.

Hypothesis 7d. Health motivation and healthy nutrition will mediate the relationship between psychological safety climate and BMI.
Hypothesis 8a. BAS will moderate the relationship between health knowledge and healthy diet. Specifically, when individuals are high in BAS the relationship between health knowledge and healthy diet will be stronger than when individuals are low in BAS.

Hypothesis 8b. BAS will moderate the relationship between health knowledge and exercise behaviors. Specifically, when individuals are high in BAS the relationship between health knowledge and exercise behaviors will be stronger than when individuals are low in BAS.

Hypothesis 8c. BAS will moderate the relationship between health motivation and healthy diet. Specifically, when individuals are high in BAS the relationship between health motivation and healthy diet will be stronger than when individuals are low in BAS.

Hypothesis 8d. BAS will moderate the relationship between health motivation and exercise behaviors. Specifically, when individuals are high in BAS the relationship between health motivation and exercise behaviors will be stronger than when individuals are low in BAS.

Hypothesis 9a. BIS will moderate the relationship between health knowledge and healthy diet. Specifically, when individuals are high in BIS the relationship between health knowledge and healthy diet will be stronger than when individuals are low in BIS.
Hypothesis 9b. BIS will moderate the relationship between health knowledge and exercise behaviors. Specifically, when individuals are high in BIS the relationship between health knowledge and exercise behaviors will be stronger than when individuals are low in BIS.

Hypothesis 9c. BIS will moderate the relationship between health motivation and healthy diet. Specifically, when individuals are high in BIS the relationship between health motivation and healthy diet will be stronger than when individuals are low in BIS.

Hypothesis 9d. BIS will moderate the relationship between health motivation and exercise behaviors. Specifically, when individuals are high in BIS the relationship between health motivation and exercise behaviors will be stronger than when individuals are low in BIS.

Hypothesis 10a. Physical exposure will moderate the relationship between psychological health climate and health knowledge. Specifically, when individuals have jobs that have high physical exposure the relationship between psychological health climate and health knowledge will be stronger than when individuals are in jobs with low physical exposure.

Hypothesis 10b. Physical exposure will moderate the relationship between psychological health climate and health motivation. Specifically, when individuals have jobs that have high physical exposure the relationship between psychological health climate and health motivation will be stronger than when individuals are in jobs with low physical exposure.
Hypothesis 11a. Psychological stress climate will be positively associated with stress reduction knowledge.

Hypothesis 11b. Psychological stress climate will be positively associated with stress reduction motivation.

Hypothesis 12a. Stress reduction knowledge will be positively associated with problem focused coping behavior.

Hypothesis 12b. Stress reduction knowledge will be positively associated with emotion focused coping behavior.

Hypothesis 13a. Stress reduction motivation will be positively associated with problem focused coping behavior.

Hypothesis 13b. Stress reduction motivation will be positively associated with emotion focused coping behavior.

Hypothesis 14a. Stress reduction motivation will mediate the relationship between psychological stress climate and problem focused coping behaviors.

Hypothesis 14b. Stress reduction knowledge will mediate the relationship between psychological stress climate and problem focused coping behaviors.

Hypothesis 14c. Stress reduction motivation will mediate the relationship between psychological stress climate and emotion focused coping behaviors.

Hypothesis 14d. Stress reduction knowledge will mediate the relationship between psychological stress climate and emotion focused coping behaviors.
Hypothesis 15a. Problem focused coping behaviors will be associated with employee psychological well-being.

Hypothesis 15b. Problem focused coping behaviors will be associated with employee DSM-V symptomatology.

Hypothesis 15c. Emotion focused coping behaviors will be associated with employee psychological well-being.

Hypothesis 15d. Emotion focused coping behaviors will be associated with employee DSM-V symptomatology.

Hypothesis 16a. Problem focused coping will mediate the relationship between stress reduction knowledge and psychological well-being and DSM 5 symptomatology.

Hypothesis 16b. Problem focused coping will mediate the relationship between stress reduction motivation and psychological well-being and DSM 5 symptomatology.

Hypothesis 16c. Emotion focused coping will mediate the relationship between stress reduction knowledge and psychological well-being and DSM 5 symptomatology.

Hypothesis 16d. Emotion focused coping will mediate the relationship between stress reduction motivation and psychological well-being and DSM 5 symptomatology.
Hypothesis 17a. Stress reduction knowledge and problem-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17b. Stress reduction motivation and problem-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17c. Stress reduction knowledge and emotion-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17d. Stress reduction motivation and emotion-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17e. Stress reduction knowledge and problem-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17f. Stress reduction motivation problem-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.

Hypothesis 17g. Stress reduction knowledge and emotion-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.
Hypothesis 17h. **Stress reduction motivation and emotion-focused coping will mediate the relationship between psychological stress climate and psychological well-being and DSM 5 symptomatology.**

Hypothesis 18a. **BAS will moderate the relationship between stress reduction knowledge and problem focused coping behavior. Specifically, when individuals are high in BAS the relationship between stress reduction knowledge and problem focused coping behaviors will be higher than when individuals are low in BAS.**

Hypothesis 18b. **BAS will moderate the relationship between stress reduction knowledge and emotion focused coping behavior. Specifically, when individuals are high in BAS the relationship between stress reduction knowledge and emotion focused coping behaviors will be higher than when individuals are low in BAS.**

Hypothesis 18c. **BAS will moderate the relationship between stress reduction motivation and problem focused coping behavior. Specifically, when individuals are high in BAS the relationship between stress reduction motivation and problem focused coping behaviors will be higher than when individuals are low in BAS.**

Hypothesis 18d. **BAS will moderate the relationship between stress reduction motivation and emotion focused coping behavior. Specifically, when individuals are high in BAS the relationship between stress reduction motivation and**
emotion focused coping behaviors will be higher than when individuals are low in BAS.

Hypothesis 19a. BIS will moderate the relationship between stress reduction knowledge and problem focused coping behavior. Specifically, when individuals are high in BIS the relationship between stress reduction knowledge and problem focused coping behaviors will be higher than when individuals are low in BIS.

Hypothesis 19b. BIS will moderate the relationship between stress reduction knowledge and emotion focused coping behavior. Specifically, when individuals are high in BIS the relationship between stress reduction knowledge and emotion focused coping behaviors will be higher than when individuals are low in BIS.

Hypothesis 19c. BIS will moderate the relationship between stress reduction motivation and problem focused coping behavior. Specifically, when individuals are high in BIS the relationship between stress reduction motivation and problem focused coping behaviors will be higher than when individuals are low in BIS.

Hypothesis 19d. BIS will moderate the relationship between stress reduction motivation and emotion focused coping behavior. Specifically, when individuals are high in BIS the relationship between stress reduction motivation and emotion focused coping behaviors will be higher than when individuals are low in BIS.
Appendix D
Survey Items

Psychological Health Promotion Climate

Top-Management:
1) Top leadership is committed to health promotion as an important investment
2) Top-management continually tries to improve employee health
3) Top-management displays a high-level of commitment to employee health

Supervisor:
4) My supervisor encourages me to make changes to improve my health
5) My supervisor displays a high level of commitment to his/her subordinates’ health
6) My supervisor often encourages subordinates to improve their health

Communication
7) My coworkers and I sometimes talk with each other about improving our health and preventing disease
8) My organization takes employee suggestions about how to improve employee health seriously
9) Within my workplace there is open communication about improving employee health
10) My organization is open to suggestions about how to improve employees’ physical health

Policies/Procedures
11) My organization provides health education programs
12) My workplace offers incentives for employees to engage in healthy behaviors (e.g. diet & exercise)
13) My organization has policies in place that support healthy lifestyle choices for employees (e.g. diet & exercise)
14) My organization provides the resources employees need in order to support a healthy lifestyle (e.g., information or classes)
Psychological Stress Climate

Top-Management:
1) Employee psychological health is given a high priority by top management
2) Top-management continually tries to improve employees stress levels
3) Top-management displays a high-level of commitment to reducing employees stress level

Supervisor:
4) My supervisor shows an interest in my stress level
5) My supervisor often helps employees’ manage their stress levels at work
6) My supervisor displays a high-level of commitment to his/her subordinate’s stress level

Communication
7) My coworkers and I encourage each other to reduce stress
8) My organization listens to the stress reduction contributions of workers
9) There is open communication in my workplace regarding stress reduction
10) My organization is open to suggestions about how to improve the stress of its employees

Policies/Procedures
11) Employees receive information and/or training to help reduce the amount of stress experienced on the job
12) My workplace offers incentives for employees to participate in activities to reduce stress
13) My organization has policies in place that aim to reduce the levels of stress experienced by employees
14) My organization provides the necessary resources in order to reduce the level of stress experienced by its employees (e.g., information or classes)
**Knowledge/Motivation Items**

**Safety Knowledge:**
I know how to use safety equipment and standard work procedures.
I know how to maintain or improve workplace health and safety.
I know how to reduce the risk of accidents and incidents in the workplace.

**Safety Motivation:**
I feel it is worthwhile to put in effort to maintain or improve my personal safety.
I feel it is important to maintain safety at all times.
I believe it is important to reduce the risk of accidents and incidents in the workplace.

**Health Knowledge:**
I know what I need to know in order to improve my overall health
I know what steps to take to maintain my physical health
I have the knowledge necessary to improve my physical health

**Health Motivation:**
I feel it is worthwhile to put in effort to maintain my health
I feel it is important to maintain and/or improve my physical health
I believe maintaining and/or improving my physical health is of great importance

**Stress Knowledge:**
I know what I need to know in order to reduce my stress at work
I know how to manage my work stress
I have the knowledge necessary to reduce my stress

**Stress Motivation:**
I feel it is worthwhile to put in effort to manage my stress at work
I feel it is important to deal with my stress in positive ways
I believe it is important to try to reduce the amount of stress I feel
Exercise behavior items

Exercise

Instructions: Please think about the past month. During that time, approximately how many days per week did you engage in each of the following types of physical activity for at least 20 consecutive minutes?

- Example 1: If you walk to work and it takes you 10 minutes each way, that would NOT count because the minutes were not consecutive.
- Example 2: If you walk to work and it takes you 20 minutes each way, then that would count as performing light physical activity that day. You walked for at least 20 consecutive minutes that day.

Item(s): 1. Light aerobic activity (Ex: Shopping, housework, light walking)
2. Moderate aerobic activity (Ex: Brisk walking, bicycling, tennis)
3. Vigorous aerobic activity (Ex: Jogging/running, swimming laps, jumping rope)
4. Muscle-strengthening activity (Ex: Lifting weights, pilates, yoga)
**Diet Quality items**

**Instructions**

Please think about the past month. We are interested in knowing a bit about your dietary habits during that period. On average, how often would you say you consumed each of the following types of food?

**Items**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Whole grains</td>
<td>*ex: Whole grain bread, oatmeal, brown rice, whole grain cereal</td>
<td>7</td>
<td>Full fat dairy *</td>
<td>*ex: regular cheese, ice cream, 2% or whole milk, full fat cottage cheese</td>
</tr>
<tr>
<td>2</td>
<td>Leafy green vegetables</td>
<td>*ex: broccoli, spinach, Romaine lettuce</td>
<td>8</td>
<td>Processed/red/organ meat *</td>
<td>*ex: lunch meats, hot dogs, beef, liver, sausage, bacon</td>
</tr>
<tr>
<td>3</td>
<td>Other vegetables that are NOT fried</td>
<td>*ex: squash, cabbage, mushrooms, peppers, onions, sweet potatoes</td>
<td>9</td>
<td>Salty or fried foods*</td>
<td>*ex: chicken fingers, chips, fries, crackers</td>
</tr>
<tr>
<td>4</td>
<td>Fresh/canned/frozen fruit (no added sugar)</td>
<td>*ex: fresh fruit, canned fruit in juice</td>
<td>10</td>
<td>Solid fats/spreads *</td>
<td>*ex: butter, margarine, mayonnaise, creamy salad dressing, lard</td>
</tr>
<tr>
<td>5</td>
<td>Low fat or fat free dairy</td>
<td>*ex: reduced fat cheese, 1% or skim milk, light yogurt, string cheese</td>
<td>11</td>
<td>Candy/cake/cookies *</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Lean proteins</td>
<td>*ex: fish, chicken, tofu, beans, nuts, eggs</td>
<td>12</td>
<td>Sweetened beverages *</td>
<td>*ex: Sweetened tea, Kool-Aid®, lemonade, non-diet soda</td>
</tr>
</tbody>
</table>

**Response scale (scores in parentheses)**

1.) Very rarely or not at all by choice (0)  
2.) Less than once per week (1)  
3.) 1-3 times per WEEK (2)  
4.) 4-6 times per WEEK (3)  
5.) Once a day (4)  
6.) 2-4 times per DAY (5)  
7.) 5+ times per DAY (6)
Coping items

Problem Focused
Item(s): Active coping
I’ve been concentrating my efforts on doing something about the situation I’m in.
I’ve been taking action to try to make the situation better.
Planning
I’ve been trying to come up with a strategy about what to do.
I’ve been thinking hard about what steps to take.
Positive reframing
I’ve been trying to see it in a different light, to make it seem more positive.
I’ve been looking for something good in what is happening.

Emotion Focused
Humor
I’ve been making jokes about it.
I’ve been making fun of the situation.
Religion
I’ve been trying to find comfort in my religion or spiritual beliefs.
I’ve been praying or meditating.
Using emotional support
I’ve been getting emotional support from others.
I’ve been getting comfort and understanding from someone.
Behavioral disengagement
I’ve been giving up trying to deal with it.
I’ve been giving up the attempt to cope.
DSM-V Symptomology

Instructions: The questions below ask about things that might have bothered you. For each question, circle the number that best describes how much (or how often) you have been bothered by each problem during the past TWO (2) WEEKS.

Item(s): 1. Little interest or pleasure in doing things?
2. Feeling down, depressed, or hopeless?
3. Feeling more irritated, grouchy, or angry than usual?
4. Sleeping less than usual, but still have a lot of energy?
5. Starting lots more projects than usual or doing more risky things than usual?
6. Feeling nervous, anxious, frightened, worried, or on edge?
7. Feeling panic or being frightened?
8. Avoiding situations that make you anxious?
9. Unexplained aches and pains (e.g., head, back, joints, abdomen, legs)?
10. Feeling that your illnesses are not being taken seriously enough?
11. Thoughts of actually hurting yourself?
12. Hearing things other people couldn’t hear, such as voices even when no one was around?
13. Feeling that someone could hear your thoughts, or that you could hear what another person was thinking?
14. Problems with sleep that affected your sleep quality over all?
15. Problems with memory (e.g., learning new information) or with location (e.g., finding your way home)?
16. Unpleasant thoughts, urges, or images that repeatedly enter your mind?
17. Feeling driven to perform certain behaviors or mental acts over and over again?
18. Feeling detached or distant from yourself, your body, your physical surroundings, or your memories?
19. Not knowing who you really are or what you want out of life?
20. Not feeling close to other people or enjoying your relationships with them?
21. Drinking at least 4 drinks of any kind of alcohol in a single day?
22. Smoking any cigarettes, a cigar, or pipe, or using snuff or chewing tobacco?
23. Using any of the following medicines ON YOUR OWN, that is, without a doctor’s prescription, in greater amounts or longer than prescribed [e.g., painkillers (like Vicodin), stimulants (like Ritalin or Adderall), sedatives or tranquilizers (like sleeping pills or Valium), or drugs like marijuana, cocaine or crack, club drugs (like ecstasy), hallucinogens (like LSD), heroin, inhalants or solvents (like glue), or methamphetamine (like speed)]?

Responses: 0=none (not at all), 1=slight (rare, less than a day or two), 2=mild (several days), 3=moderate (more than half the days), 4=severe (nearly everyday)
Psychological well-being scale

1. When I look at the story of my life, I am pleased with how things have turned out.
2. I like most aspects of my personality.
3. For the most part, I am proud of who I am and the life I lead.
4. I often feel lonely because I have few close friends with whom to share my concerns.
5. I feel like I get a lot out of my friendship.
6. I know I can trust my friends, and they know they can trust me.
7. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.
8. I tend to be influenced by people with strong opinions.
9. It’s difficult for me to voice my opinions on controversial matters.
10. The demands of everyday life often get me down.
11. I am good at juggling my time so that I can fit everything in that needs to get done.
12. I have difficulty arranging my life in a way that is satisfying to me.
13. I don’t have a good sense of what it is I’m trying to accomplish in life.
14. I am an active person in carrying out the plans I set for myself.
15. Some people wander aimlessly through life but I am not one of them.
16. In general, I feel that I continue to learn about myself as time goes by.
17. I think it is important to have new experiences that challenge how you think about yourself and the world.
18. For me, life has been a continuous process of learning, changing, and growth.
BAS and BIS measures used in the study

Item(s): Behavioral Inhibition System

1. If I think something unpleasant is going to happen I usually get pretty "worked up."
2. I worry about making mistakes.
3. Criticism or scolding hurts me quite a bit.
4. I feel pretty worried or upset when I think or know somebody is angry at me.
5. Even if something bad is about to happen to me, I rarely experience fear or nervousness.*
6. I feel worried when I think I have done poorly at something.
7. I have very few fears compared to my friends.*

Behavioral Activation System

1. When I get something I want, I feel excited and energized.
2. When I'm doing well at something, I love to keep at it.
3. When good things happen to me, it affects me strongly.
4. It would excite me to win a contest.
5. When I see an opportunity for something I like, I get excited right away.
6. When I want something, I usually go all-out to get it.
7. I go out of my way to get things I want.
8. If I see a chance to get something I want, I move on it right away.
9. When I go after something I use a "no holds barred" approach.
10. I will often do things for no other reason than that they might be fun.
11. I crave excitement and new sensations.
12. I'm always willing to try something new if I think it will be fun.
13. I often act on the spur of the moment.
Physical Exposure Scale

How often does your job require you to...

1. Lift, push, or pull heavy objects (e.g., 80+pounds)?
2. Perform the same motion over and over without a break (e.g., typing, scanning, assembling)?
3. Use force with your fingers (e.g., pinching)
4. Twist, bend, squat, kneel, etc.
5. Stand in one position for a long time?
6. Hold your arms in one position for a long time?
7. Work with a great deal of noise?
8. Work in areas with poor lighting?
9. Work in areas with very high or very low temperatures?
10. Work in areas with poor air quality?
11. Work with dangerous substances?
12. Work in areas with slippery or uneven surface
References


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