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Management Safety Climate And Violence Prevention Climate: A Mediational Model For Healthcare Employee Outcomes

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MANAGEMENT SAFETY CLIMATE AND VIOLENCE PREVENTION CLIMATE: A MEDIATIONAL MODEL FOR HEALTHCARE EMPLOYEE OUTCOMES

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DEDICATION

This work is dedicated to my daughter, Eleanor. You've given more purpose to my education and hard work than I ever could on my own.

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CHAPTER 1 INTRODUCTION

Workplace violence is an occupational hazard that is defined as aggressive acts against employees ranging from verbal abuse, threats, and bullying, to physical assault (OSHA, 2002; Jackson, Clare, & Mannix, 2002). A multitude of studies exists on outcomes and predictors of violence perpetration (e.g., Anderson & Bushman, 2002; Barling, Dupre, & Kelloway, 2009) and victimization (Aquino & Thau, 2009), yet the problem of workplace violence still persists. The healthcare worker population, in particular, is at increased risk for experiencing violent events (e.g., Arnetz et al., 2014; BLS, 2015a). Not only are there organizational and individual consequences of this occupational hazard, but the quality of patient care may also suffer due to fear of patient-perpetrated violence (Arnetz & Arnetz, 2001; Winstanley & Whittington, 2002) and a hostile work environment (Ceravolo, Schwartz, Foltz-Ramos, & Castner, 2012; Khadjehturian, 2012). A potential protective factor for employees at-risk of workplace violence is a positive work environment (Spector, Coulter, Stockwell, & Matz, 2007), cultivated through specific climates. The two purposes of this study were (1) to differentiate two specific forms of psychological climate related to workplace violence on a work unit: Violence Prevention Climate (VPC) and Management Safety Climate (MSC), and (2) to test a causal model focusing on the relationship between these climates and their effects on relevant outcomes for at-risk employees in the healthcare industry.

Workplace Violence in Healthcare

Healthcare employees in the United States are at an increased risk for experiencing workplace violence (Gillespie, Gates, Miller, & Howard, 2010), with an average incidence rate (14.4/10,000 Full-Time Equivalents) that is more than triple that of the private sector average (4.0/10,000 Full-Time Equivalents; BLS, 2015a). Further, violent acts account for nearly one-half

of all fatal occupational injuries in hospitals (BLS, 2015b). This represents a major occupational hazard for healthcare employees nationwide, and a priority for healthcare organizations.

For accreditation, U.S. hospitals must develop and maintain policies and procedures for the prevention of workplace violence, among other occupational hazards (CIHQ, 2010; The Joint Commission, 2008). Their standards must focus not only on overt physical assault, but also less intense behaviors that undermine a culture of safety at work (The Joint Commission, 2008), such as verbal abuse or harassment. Several researchers (e.g., Arnetz & Arnetz, 2000; Fernandes et al., 2002; Gillespie, Gates, Kowalenko, Bresler, & Succop, 2014; Kling, Yassi, Smailes, Lovato, & Koehoorn, 2011; Lipscomb et al., 2006) have tested interventions targeting workplace violence in healthcare settings, with none resulting in long-term reduction of violent events. While there is growing research on the risk factors of workplace violence (e.g., Arnetz et al., 2015a; Gillespie et al., 2010; Hamblin et al., 2015a), it is often difficult to develop targeted interventions across an organization due to its multiple forms and perpetrators (Hamblin et al., 2015b).

Healthcare employees are targeted for violence by multiple sources, categorized into four types based on the perpetrator: Type I involves an outsider to the organization with no business or personal relationships to employees, and usually includes criminal activity; Type II involves clients, such as patients and patient visitors; Type III involves coworkers and/or supervisors; and Type IV involves someone who has a personal relationship with the employee but no business relationship with the organization (IPRC, 2001). Research has found that there may be differential relationships between types of perpetrators and employee/organizational outcomes (McGonagle et al., 2015).

In healthcare, previous research has found that the most prevalent type of workplace violence is patient-to-worker (Type II; Janocha & Smith, 2010). Type II incidents account for the

majority of violence-related nonfatal occupational injuries in hospitals (Janocha & Smith, 2010). Patients or patient visitors who perpetrate violence against healthcare workers (Type II) are likely to have a mental health disorder, a history of alcohol or substance abuse, a history of violent behaviors, or possess weapons (Gillespie et al., 2010; Pompeii et al., 2013). Circumstances that may contribute to Type II violent behaviors include physical transfers of patients, experiencing pain or discomfort, fear of needles or treatments, and using physical restraints, to name a few (Arnetz et al., 2015a). These violent events tend to include a physical component and may result in injuries (Arnetz et al., 2014) such as lacerations, strains, or broken bones (BLS, 2015a; Janocha & Smith, 2010). There are psychological and organizational consequences for these events as well, such as sleep disorders, depression, and post-traumatic stress disorder (Gates, Gillepie, & Succop, 2011), increased turnover (Sofield & Salmond, 2003) and decreased work satisfaction (Hesketh et al., 2003).

Worker-to-worker violence (Type III) in healthcare can be perpetrated by employees of the same professional rank or between ranks. Workplace violence committed between professional ranks is often thought to occur due to power imbalances (Felblinger, 2008). Physicians have reportedly targeted medical residents (Acik et al., 2008) and nurses through "disruptive behaviors" (Hegney, Eley, Plank, Buikstra, & Parker, 2006; Rosenstein, 2002), such as incivility toward staff, and sexual harassment (Bronner, Peretz, & Ehrenfeld, 2003; Celik & Celik, 2007; Madison & Minichiello, 2000). Even within the same professional rank, seniority can also lead to aggression such as bullying of novice nurses by tenured nursing staff (Berry, Gillespie, Gates, & Schafer, 2012; Ditmer, 2010; McKenna, Smith, Poole, & Coverdale, 2003). Workplace violence committed within the same professional rank is referred to as "horizontal violence" (Ditmer, 2010; Farrell, 2001; McKenna et al., 2003) or "lateral violence" (Dimarino, 2011). One study qualitatively

examined the catalysts behind Type III documented incidents in a hospital setting, finding that work behaviors (i.e. methods of patient care, duties and responsibilities) and work organization (i.e., patient assignments, limited resources) contributed to the initiation of violence (Hamblin et al., 2015a). Type III workplace violence typically does not involve a physical injury (LeBlanc & Barling, 2004), but can have long-lasting psychological consequences for those targeted (Arnetz & Arnetz, 2001; Gerberich et al., 2004; Hesketh et al., 2003). Negative affect, low supervisor support, and low job control have been positively related to exposure of Type III workplace violence (Demir & Rodwell, 2012). Psychological and organizational consequences of Type III workplace violence include increased absenteeism (Kivimaki, Elovainio, & Vahtera, 2000; Rowe & Sherlock, 2005) and decreased work satisfaction and retention among nurses (Rosenstein, 2002).

Quality of patient care may also be affected by experience of violent events (Arnetz & Arnetz, 2001). Violence perpetrated by patients may lead employees to use extra caution or feel on guard when providing treatment (Arnetz & Arnetz, 2001), resulting in detachment from work (Winstanley & Whittington, 2002) and decreased quality of patient care (Arnetz & Arnetz, 2001). Exposure to other types of workplace violence may also lead to reduced quality of care. Worker-to-worker violent behaviors undermine a culture of safety (The Joint Commission, 2008) and foster hostile work environments (Ceravolo et al., 2012; Khadjehturian, 2012). Research has found that employee perceptions of their work environment can contribute to quality of patient care, including medication errors (Paquet, Courcy, Lavoie-Tremblay, Gagnon, & Maillet, 2013).

Perceptions of workplace safety and violence prevention have been linked to reductions in exposure to workplace violence (Hegney, Tuckett, Parker, & Eley, 2010; Lipscomb et al., 2012) and decreased fear of future violence (Mueller & Tschan, 2011; Spector et al., 2007). In effort to reduce these negative consequences, healthcare organizations should take steps to bolster more

positive perceptions of the work environment regarding workplace violence (Spector et al., 2007). As found in a previous study on worker-to-worker reported incidents of violence (Hamblin et al., 2015a), certain catalysts for these events are easily modifiable factors in the work environment that might be easily remedied by the supervisor of a work unit.

Climates for Prevention

Unit supervisors may help to cultivate employee perceptions of a more positive (i.e., safer) work environment through their actions and values. Supervisors are responsible for managing adverse events on their work units. Their actions in response to these events, including workplace violence, shape their subordinates' perceptions of the work unit's Safety Climate (Zohar, 2010). In particular, MSC is defined as the perception that unit management acts to promote a safe work environment (Morrow et al., 2010). Related specifically to workplace violence, VPC (Spector et al., 2007), was developed in order to adapt Safety Climate more appropriately to the aspects of violent events, both physical and non-physical. VPC is defined as the perception that the organization promotes the control and elimination of workplace violence (Kessler, Spector, Chang, & Parr, 2008; Spector et al., 2007; Yang, Spector, Chang, Gallant-Roman, & Powell, 2012). Each of these constructs was developed from Safety Climate, yet they focus on different attitudes and actions, pertaining more generally to workplace safety or more specifically the prevention of workplace violence.

By proposing the current study, I sought to more fully understand how these two forms of climate related to each other (relatedness and distinctiveness) and how they related to outcomes for employees in healthcare. While research has supported each as an important factor in workplace safety (e.g., Christian, Bradley, Wallace, & Burke, 2009; Nahrgang, Morgeson, &

Hofmann, 2008; Spector et al., 2007), less is known about their relationship to each other. To date, no study has tested a direct relationship or mediation effect between Safety Climate and VPC.

Specifically, there were two goals of this study. First, VPC was tested for relatedness and differentiation from MSC. Second, a model was proposed in which VPC was directly predicted by MSC and partially mediated the effects of MSC on study outcomes: work satisfaction, work-related exhaustion, workplace violence exposure, and the perception that workplace violence is a problem personally.

Theoretical Foundation for Climates related to Safety and Workplace Violence

MSC and VPC were the variables of focus in the current study. In order to link them to previous research and build a theoretical foundation for their roles in the current study, a literature review of their origin is provided below. In the following sections, the broader construct of climate is reviewed, building up to Safety Climate in particular, and Psychological Safety Climate, more specifically.

Climate

Within a given work setting, behavioral expectations are placed on employees, who are agents of the organization. These expectations are communicated by upper management through policies, procedures, and practices (Schneider, 1990; Zohar, 2002), forming a general perception of what is valued by the organization, or *climate*. Climates exist in multitude and are specific to different aspects of the workplace (Reichers & Schneider, 1990; Zohar, 2003) such as service, (Schneider, 1990), safety (Zohar, 2003) or violence prevention (Spector et al., 2007), to name a few. Each aspect serves as a referent by which employee behaviors are guided and reinforced based on their alignment with organizational expectations (e.g., Zohar & Luria, 2010). Climates can also be formed based on the values and expectations of a work unit or team.

Climate is reflective of an organization's values, and one important distinction to be made in climate research is that of enacted versus espoused values (Zohar, 2010). Espoused values are those communicated formally to employees, often found in written policies, orientation or training, and other organizational artifacts. Enacted values are those acted upon, found in behavioral practices of management and supervisors. Espoused values may not necessarily be enacted, leading to discrepancies in perceptions of what is valued by the organization. A misalignment in what the organization "declares" to value and what it "displays" to value may lead to ambiguity in employee expectations of which behaviors will be rewarded, and subsequently a weaker climate (Zohar, 2000; 2003).

Another distinction made in the climate literature is between *organizational or group climate* and *psychological climate* (Glisson & James, 2002). Organizational or group climates are conceptualized at the aggregate level (Zohar & Luria, 2010), as shared perceptions or patterns of behavior among a group of workers (Schneider, Bowen, Ehrhart, & Holcombe, 2000). Using the direct consensus model (Chan, 1998), there must be enough agreement among individual perceptions of the work environment (e.g., Glisson & James, 2002) to form this higher-level construct. However, climate conceptualized at the individual level can provide valuable insights into employee experiences and outcomes as well (Schneider & Reichers, 1983). Psychological climate refers to the individual's perception of their working environment (James & James, 1989; Morrow et al., 2010). Climate research, therefore, may focus on individuals (psychological climate), groups (team/unit/group climate), or organizations (organizational climate) or may traverse multiple levels. To maintain methodological rigor when using multilevel variables, it is important to align the level of theory, measurement, and analysis to minimize errors due to

unmatched levels (Mathieu & Chen, 2011; Rousseau, 1985). The current study focused on the individual level of all variables, in their conceptualization, measurement, and analysis.

Safety Climate

A specific type of climate, Safety Climate, was the foundation for the climate variables of the current study. Safety Climate (Zohar, 1980) is the degree to which safety is valued at the organization or within a group (e.g., Neal & Griffin, 2006). Safety Climate and has consistently been a strong predictor of safety outcomes across industries (e.g., Christian et al., 2009; Nahrgang et al., 2008; Neal & Griffin, 2006). Employees are faced with multiple job demands that represent different facets of their work, and these demands compete for resources. Safety Climate is based on the perception of how the organization prioritizes workplace safety relative to these other demands (e.g., Zohar, 2014). One traditional example is that of workplace safety versus productivity. In a given situation, an employee may need to sacrifice either workplace safety or productivity, due to limited resources (e.g., time, equipment), and may try to align their decision with what is expected by the organization. As with other types of climates, there are policies, practices, and procedures regarding workplace safety in place at the organization to guide employee behaviors in these situations (Zohar, 2010). One organization may prioritize workplace safety above its product, while another may prioritize meeting deadlines for their clients, even if it puts employees at risk. This represents a facet of Safety Climate, known as work-safety tension (McGonagle & Kath, 2010; Morrow et al., 2010); the perceived strain between finishing work tasks and workplace safety.

Antecedents and outcomes of Safety Climate have been studied in the organizational climate literature for decades (Zohar, 2014). Drawing on previous research, Zohar (2014) outlined a conceptual framework for Safety Climate including its most consistent antecedents and outcomes

across studies. The antecedents included structural attributes of the work environment (e.g., barriers to protect employees, proper lighting), symbolic social interaction (i.e., incorporating personal observations and experiences with those of coworkers to converge on a climate perception), leadership (e.g., leader-member exchanges, leadership styles), psychological work ownership (e.g., integrating work as part of the self, claiming physical objects of the work environment), and others (e.g., organizational commitment, job stress, burnout, and personality factors; Zohar, 2014). Leadership in particular has an interesting relationship with Safety Climate, as there are many measurements and conceptualizations of leadership (Dinh et al., 2014). One meta-analysis (Nahrgang et al., 2008) covering 59 samples found a strong correlation between leadership quality and Safety Climate. Leadership in this context is often conceptualized as a leader-member exchange and social learning process, in order to inform employees over time of the leader's priorities for safety (Zohar, 2014).

Individual outcomes of Safety Climate have encompassed stress and burnout (Nahrgang, Morgeson, & Hofmann, 2011), engagement (Zohar, Huang, Lee, & Robertson, 2015), occupational injuries (Christian et al., 2009; Clarke, 2010; Nahrgang et al., 2011), safety motivation, and safety behaviors (e.g., Zohar, 2014). Relationships have been in expected directions, with favorable outcomes relating positively to Safety Climate, and vice versa (Zohar, 2014).

Safety Climate has more recently been studied as a multilevel construct, not only spanning the organization, but also inhabiting individual work units (Zohar, 2000; Zohar & Luria, 2005; Zohar, 2014). Work units are nested within the larger organization (Hofmann, 1997), housing their own climate perceptions and local processes, while still functioning within the larger organizational climate (Zohar & Luria, 2005). A multilevel model was tested by Zohar and Luria

(2005) by measuring subscales of Safety Climate with referents at the organization and work unit. Their results showed an alignment between group-level (work unit) and organizational Safety Climate, with group-level Safety Climate fully mediating the effects of organizational Safety Climate on individuals' safety behaviors. This is an important finding, as it points to the more proximal indicators of Safety Climate on the work unit as influential factors in employee safety behaviors. Their research found variation between work units in terms of Safety Climate, attributing this finding to unit supervisors, as they influenced perceptions of the group-level climate.

Unit supervisors are the local leadership of work units, and provide a salient example of behavioral expectations relative to workplace priorities (Zohar & Luria, 2010). Safety Climate on the work unit level may not align with Safety Climate on the organizational level. Employees must integrate information from the organization as well as their work unit to make decisions about safety behavior. The Safety Pyramid Model (Reason, 1997) provides a conceptual outline of how employees process information to make these safety decisions. At the base of this pyramid, organizational policies exist at the broadest level, and are perceived as either enacted or espoused. On the second tier, departmental priorities represent the proximal values and goals of the work unit, emphasizing either workplace safety or a productivity goal. On the top tier of the pyramid, the individual makes decisions relative to workplace safety, using the bottom tiers as behavioral guidance. Thus, the levels of Safety Climate at the organization and within a work unit may interact in different ways to inform employees of behavioral expectations for workplace safety. If the two referents are aligned, expectations for safety behaviors are clear. If the two are competing, the employee may use extra resources in order to reconcile this discrepancy, or may experience work-related stress due to unclear expectations (e.g., Zohar, 2000; 2003).

Psychological Safety Climate. As previously discussed, there is a distinction between organizational climate and psychological climate (Glisson & James, 2002). Likewise, Safety Climate can be conceptualized and measured in the aggregate (Zohar & Luria, 2010), as shared perceptions or patterns of behavior among a group of workers (Schneider, Bowen, Ehrhart, & Holcombe, 2000), or individually, as an individual's perception of their working environment (James & James, 1989; Morrow et al., 2010). At the individual level, *Psychological Safety Climate* refers to the individual perception that safety is a workplace priority (Griffin & Neal, 2000).

Psychological Safety Climate has been measured in many ways, resulting in a vast array of factor structures and dimensions across studies (Flin, Mearns, O'Connor, & Bryden, 2000; Seo, Torabi, Blair, & Ellis, 2004; Zohar, 2014). Flin et al. (2000) performed a thematic analysis on 18 instruments used to measure Safety Climate, finding that the majority (72%) of instruments included some dimension of management attitudes and/or behaviors regarding safety. Several scales also included a separate factor for unit supervisors, recognizing their significance in shaping employee perceptions of Safety Climate. Among the various instruments and conceptualizations of Psychological Safety Climate, three common factors persist (Morrow et al 2010): management safety, coworker safety, and work-safety tension. Management safety, also called MSC, refers to perceptions that the supervisor prioritizes workplace safety. Coworker safety refers to perceptions that coworkers prioritize safety. Work-safety tension refers to perceptions that workplace safety is interfering with other job demands, and vice versa (McGonagle & Kath, 2010; Morrow et al., 2010). The most frequently cited of these factors is MSC (Seo et al., 2004), which is an independent variable of the current study.

The Current Study

The sections below introduce the current study variables and outline previous research to support the study hypotheses. A causal model (Figure 1) was developed and described based on hypothesized relationships between study variables. The independent variable was MSC, and the proposed mediator was VPC. Study outcomes were work satisfaction, work-related exhaustion, workplace violence exposure, and the perception that workplace violence is a problem personally. All study variables were conceptualized, measured, and analyzed at the individual level (Mathieu & Chen, 2011; Rousseau, 1985). The sections below are organized as follows. First, MSC is reviewed and discussed in relation to previous research. Second, VPC is introduced and its relationship with MSC is proposed. Third, study outcomes are introduced, reviewed in relation to previous research, and their relationships with MSC and VPC are proposed. Finally, a partial mediation is proposed by MSC on the effects of VPC on study outcomes.

Climate Variables

Management Safety Climate. MSC represents the perceived commitment of unit supervisors to worker safety and their response to adverse events (Morrow et al., 2010). Zohar (1980) described this facet as management attitudes toward safety. Put simply, employees observe the actions of their unit supervisor specific to workplace safety, and these observations inform their perceptions of Safety Climate, specific to their unit supervisor. As discussed, group-level and organizational-level Safety Climate do not always align (Zohar & Luria, 2005; 2010), and there tends to be variation in Safety Climate across work units within a single organization (Zohar, 2000; Zohar & Luria, 2005). This is due to the influence of unit supervisors as the proximal example of what is expected of employees on their work unit (Zohar & Luria, 2010).

In effort to consolidate the multiple definitions and factor structures of Safety Climate from previous research, a cross-validation study (Seo et al., 2004) developed a scale based on these

previous studies, identifying one issue that may have contributed to the idiosyncrasies between established factor structures (e.g., Coyle, Sleeman, & Adams, 1995; Mearns, Flin, Gordon, & Fleming, 2003; O'Toole, 2002; Zohar, 1980). Two dimensions, management commitment and supervisor support, significantly related to indicators of other model dimensions, including coworker support, employee participation, and competence level. The authors argue that previous structures have failed to identify the substantial influence that supervisors and upper management have on other dimensions of Safety Climate (Seo et al., 2004). This important finding suggests that the role of supervisors and management in cultivating Safety Climate should be emphasized in organizations seeking to improve employee perceptions of this climate (Morrow et al., 2010; Seo et al., 2004).

The current study included MSC in light of this finding. This construct was chosen based on the emphasis of the unit supervisor's role in Safety Climate. In fact, the facet of MSC is one of the strongest predictors of unit safety compliance and accidents (Hayes, Perander, Smecko, & Trask, 1998; Zohar, 2000), and considered to be the most salient conceptualization of overall Safety Climate (Zohar, 2003) in terms of employee perceptions (Zohar & Luria, 2010). In a nursing sample, researchers found this facet to be the most strongly correlated with workplace injuries and errors (Hoffman & Mark, 2006). This construct has been linked negatively to job stress and positively to job satisfaction (Hayes et al., 1998). As discussed, espoused and enacted values provide different information to employees about organizational expectations. MSC measures enacted values, those practices and attitudes of the unit supervisor that inform employees of the "true" Safety Climate on their work unit.

Violence Prevention Climate. VPC is defined as the perception that the organization promotes the control and elimination of workplace violence (Kessler et al., 2008; Spector et al.,

2007; Yang et al., 2012). It was constructed as an extension of Safety Climate, contextualized to the hazard of workplace violence (Spector et al., 2007). In other words, this type of climate focuses on violence prevention as the specific aspect of the workplace by which employee behaviors are guided and reinforced through organizational expectations. Spector et al. (2007) intended to develop a novel construct that would relate not only to physical violence and injury (as Safety Climate also does), but to non-physical violence as well, such as verbal abuse. This is of importance, as non-physical violent events also have many consequences for the employee and organization (e.g., Arnetz & Arnetz, 2001; Gerberich et al., 2004; Hesketh et al., 2003; Kivimaki et al., 2000; Rowe & Sherlock 2005). As stated, workplace violence includes aggressive acts against employees ranging from verbal abuse, threats, and bullying, to physical assault (OSHA, 2002; Jackson et al., 2002).

Spector and colleagues (2007) proposed perceived violence climate, later referred to as violence prevention climate, or VPC, and developed the first measurement of this concept. Their purpose was to examine how nursing staff perceived violence prevention on the part of their hospitals, using a unidimensional scale. To add to this measurement, Kessler and colleagues (2008) developed a new scale of VPC that included multiple dimensions in order to be more reflective of the definition of climates, including policies, practices, and procedures. By finding relevant items from Safety Climate scales and using parts of the scale by Spector et al. (2007), their scale contained three dimensions: policies and procedures, responses and practices, and pressure against prevention, each relating differentially to outcomes. These dimensions are parallel with common Safety Climate dimensions (e.g., Morrow et al., 2010), including work-safety tension (McGonagle & Kath, 2010; Morrow et al., 2010), measured by pressure against prevention: the perception that workplace violence prevention is compromised in order to meet job demands (Yang et al., 2012).

VPC has been found to relate directly to workplace violence and employee outcomes. Significant negative relationships were found between VPC and physical violence, verbal aggression, injury from violence, perceived danger at work, physical symptoms from violence exposure, anxiety, and depression (Spector et al., 2007; Spector, Yang, & Zhou, 2015). Perception of poor VPC (low management control or elimination of workplace violence) has been associated positively with experience of physical strains and exposure to workplace violence (Kessler et al., 2008; Spector et al., 2015), and negatively with work motivation (Chang, Eatough, Spector, & Kessler, 2012). A significant positive association has been found between VPC and work satisfaction (Aytac & Dursun, 2012).

VPC, like Safety Climate, may vary between work units of the same organization (Zohar & Luria, 2005; 2010). Employees observe the actions of their unit supervisors in response to workplace violence. Behavioral expectations are developed through interactions with the unit supervisor during or following workplace violent events. Some supervisors may be proactive in reducing workplace violence, while others may try to downplay violent events on their unit in effort to reduce the disruption of productivity, resulting in perceptions of pressure against violence prevention (Yang et al., 2012), a form of work-safety tension (McGonagle & Kath, 2010; Morrow et al., 2010).

Relationship between Violence Prevention Climate and Management Safety Climate. To date, no studies have examined the relationship between MSC and VPC. Conceptually, MSC and VPC are distinct in their focus on different behaviors and consequences. MSC tends to be centered on broader, more traditional safety aspects, such as musculoskeletal injuries and slips, trips, or falls (BLS, 2015a) in hospitals. Meanwhile, VPC concerns workplace violence, specifically. The two constructs were expected to have differential relationships with outcomes

due to this difference. For instance, VPC was expected to be more proximally related to outcomes relevant to workplace violence than MSC, such as fear of future violence exposure (Spector et al., 2007). MSC is linked to more formal regulations, such as those set up by The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and The Occupational Safety and Health Administration (OSHA). Supervisors may also choose to engage in behaviors and attitudes that support perceptions of either MSC or VPC, separately. In other words, it may be possible for a unit supervisor to invoke employee perceptions of MSC through their actions and values surrounding certain safety behaviors, while not promoting the control or elimination for workplace violence on their unit. In this case, this unit supervisor should be rated highly on MSC and poorly on VPC. Their measurements were expected to have some unique variance apart from each other, and they were expected to be psychometrically distinct from one another.

Hypothesis 1: Management Safety Climate is psychometrically distinct from Violence Prevention Climate.

While it was expected that these constructs would be distinct, they were also expected to be related. Both have their roots in the Safety Climate literature (e.g., Morrow et al., 2010; Spector et al., 2007) and represent climates that support employee well-being. Although they may relate differently to domain-relevant outcomes (e.g., workplace violence, needlestick injuries), they share the same directional relationships with certain outcomes, such as work satisfaction (e.g., Aytac & Dursun, 2012; Hayes et al., 1998; Kessler et al., 2008). It is probable that a supervisor who works to eliminate one occupational hazard on their unit will be more likely to engage in the elimination of other hazards, including traditional safety hazards and workplace violence. Therefore, it was expected that MSC would positively relate to VPC.

Hypothesis 2: Management Safety Climate positively relates to Violence Prevention Climate.

Outcomes

Before introducing the study outcomes, a brief theoretical overview is presented as a foundation for the proposed relationships between these outcomes and the climate variables of MSC and VPC. Three theories are outlined here: the traditional stress framework, the Conservation of Resources theory, and the Job Demands-Resources model.

Workplace violence researchers have typically adopted a traditional stress framework (Pratt & Barling, 1988) to describe the relationships between workplace violence and work-related or individual outcomes. In this framework, there are stressors, stress, and strains. A *stressor* is an acute event or environmental characteristic that elicits feelings of tension, such as a workplace violence event. *Job stress* is the feeling of psychological tension brought on by work-related stressors. *Work-related strain* is the physical and/or psychological consequence of prolonged feelings of job stress (LeBlanc & Kelloway, 2002). The traditional stress framework posits that a job stressor positively influences feelings of job stress, over time contributing to manifestations of work-related strain (LeBlanc & Kelloway, 2002; Pratt & Barling, 1988). Strains can manifest physically (e.g., musculoskeletal pain; Yang et al., 2012) or psychologically (e.g., burnout; Lee & Ashforth, 1996). Therefore, job stressors represent a threat to employee well-being (Schaufeli & Taris, 2014), but are often an integral part of the work environment, such as work pressure (Lee & Ashforth, 1996). However, some stressors in the workplace are not part of the job and are somewhat preventable, such as workplace violence or fear of future violence (Hershcovis & Barling, 2010). Previous research has found support for a stress model of workplace violence in a hospital setting (Schat & Kelloway, 2000). This study replicated the model tested by Rogers and

Kelloway (1997), where workplace violence exposure was the job stressor, job stress was experienced as fear of future workplace violence, and this mediated the effects of experienced violence on several work-related strains (e.g., emotional well-being), following the stressor-stress-strain linkage.

In order to overcome job stressors and potentially curtail the development of job stress and work-related strain, employees make use of various resources. According to the Conservation of Resources (COR) theory (Hobfoll, 1989; 2001), individuals seek to obtain and conserve resources in order to reduce stress and maximize the potential for success. Resources can range from job equipment and employee skill sets to the work environment, including Psychological Safety Climate (e.g., Dollard & Bakker, 2010). When resources are used optimally, they can be linked together as "resource caravans" (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010) which operate as a system to influence positive outcomes, such as work satisfaction. These positive outcomes, in turn, can reciprocate positive effects on job resources, creating a "gain spiral" (Hobfoll, 1989; 2001). For instance, using resources effectively may contribute to increased employee engagement, which in turn contributes to more active acquisition of resources (Bakker & Demerouti, 2014). However, when resources are overused on the job, a "loss spiral" may occur (Hobfoll, 1989; 2001), as the employee must continue to use limited resources until they are spent, resulting in resource loss. More resources must then be garnered to maintain productivity, and a loss spiral occurs: resources continue to be drained, making employees less effective at overcoming subsequent job stressors. This loss can manifest as job stress, contributing over time to work-related strains, such as work-related exhaustion. Employees who experience workplace violence must utilize resources they have reserved for their work (e.g., physical energy) in order

to meet the extraneous demand of workplace violence. Workplace violence therefore poses a threat to employee resources and may contribute to further resource loss and even loss spirals.

These two theories are integrated in a process laid out in the Job Demands-Resources (JDR) model (Bakker & Demerouti, 2007). This model posits that every job has demands that must be overcome, and resources that may be used to overcome those demands. Job demands represent factors that must be overcome by the employee physically, psychologically, and/or socially (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). When these job demands are not adequately countered with job resources, they become job stressors (Bakker & Demerouti, 2007; Meijman & Mulder, 1998), as discussed in the traditional stress framework. Relevant to the current study, an example of a job demand might be physically lifting a disabled patient. Workplace violence is not part of the job, and therefore does not represent a job demand, but rather an additional stressor in the workplace that contributes to feelings of stress. Demands may also have an accumulative effect, interacting with or adding to other demands to produce an exacerbated effect on employee and organizational outcomes (van Woerkom, Bakker, & Nishii, 2016). In other words, job demands are not always stand-alone stressors, but may represent a greater threat to employee well-being when compounded with other demands. Workplace violence occurs during the work day of a healthcare employee, amidst work routines and tasks, including patient care. The demand of responding to workplace violence, in conjunction with job demands, may have an even greater deleterious effect on employee resources, and may enhance the probability of experiencing work-related strains. Job demands have consistently been linked to work-related strains, such as burnout (e.g., Bakker, Demerouti, & Euwema, 2005; Salanova, Schaufeli, Xanthopoulou, & Bakker, 2007), and this effect may be countered or buffered with the utilization of job resources (Bakker & Demerouti, 2007).

In the JDR model, job resources represent factors of the workplace that are supportive, motivational, or aid the employee in overcoming job demands (Bakker & Demerouti, 2007). In line with the COR theory, employees aim to gather and preserve resources in order to more effectively counter stressors. However, job resources are not limited to tangible, finite entities, but also include factors such as social support (Bakker & Demerouti, 2007) and the work environment (Bakker & Demerouti, 2014; Dollard & Bakker, 2010). Relevant to this study, examples of resources include Psychological Safety Climate (Dollard & Bakker, 2010) and VPC (Spector et al., 2015) as positive environments that provide employees with a sense of support regarding safety issues and workplace violence. Different resources can be used to immediately support an employee in order to meet a demand, to reduce job demands in the future, and/or for employee development in order to more effectively overcome future job demands (Bakker & Demerouti, 2007). When demands are high, resources can become more salient due to the urgent need to utilize resources, and have been evidenced to relate positively to employee engagement, among other positive outcomes (Bakker & Demerouti, 2014). This represents an interactive process between job demands and job resources, through which the positive effects of job resources are amplified in the presence of challenging job demands (Bakker & Demerouti, 2014; van Woerkom et al., 2016). There has also been evidence of a reciprocal relationship between positive employee outcomes (e.g., engagement) and job resource gain (Schaufeli & Taris, 2014), representing a resource gain spiral, such as discussed in the COR theory (Hobfoll, 1989; 2001).

Work satisfaction. Work satisfaction is a well-studied concept in the organizational literature, and can be conceptualized as an attitude or affective orientation an employee has for their job, measured globally or based on several facets (Weiss, Nicholas & Daus, 1999). There is an incomplete understanding of how work satisfaction is linked to behaviors and outcomes for

healthcare workers (Lu, While, & Barriball, 2005). The current study aimed to contribute to the literature by studying relationships of work satisfaction with MSC and VPC in a healthcare population.

In healthcare, work satisfaction has been studied widely in samples of nurses, as there is a need to understand factors for nurse retention (Rosenstein, 2002), and work satisfaction has a consistent, negative link to intent to quit and actual turnover (e.g., Coomber & Barriball, 2007; Lu et al., 2005; Zangaro & Soeken, 2007). Researchers in this area have found environmental factors, such as climate, to be more strongly related to work satisfaction than individual factors (Blegen, 1993; Irvine & Evans, 1995; Coomber & Barriball, 2007), such as demographics (e.g., age, tenure, gender). In their review of the research literature, Coomber and Barriball (2007) cited studies that found positive associations between different aspects of leadership and work satisfaction for nurses. The different measurements of leadership in this review included leadership styles, satisfaction with supervision, and perceived qualities of the supervisor (e.g., competency). In extension, this study examined MSC (i.e., actions and values of the supervisor which promote worker safety) as it related to work satisfaction in a healthcare setting.

Positive associations have been found between work satisfaction and VPC (Aytac & Dursun, 2012; Kessler et al., 2008). Previous studies in healthcare have not only stressed the importance of environmental factors in work satisfaction (Coomber & Barriball, 2007; Zangaro & Soeken, 2007), but also the need to explore possible mediators between aspects of the work environment and work satisfaction (Zangaro & Soeken, 2007). In response, the current study also tested a mediation of VPC on the relationship between MSC and work satisfaction.

Using the JDR model, Nielsen, Mearns, Matthiesen, and Eid (2011) studied risk perception as a job demand, Psychological Safety Climate as a job resource, and job satisfaction as an

outcome. Their findings pointed to a negative relationship between occupational risk perceptions and job satisfaction, which was attenuated by perceptions of Psychological Safety Climate, successfully mediating the relationship. While their sample was of off-shore workers, the rationale for their study was based on safety critical organizations, which includes healthcare and hospital settings.

Studying hospital workers, researchers (McCaughey, DelliFraine, McGhan, & Bruning, 2013) found that Safety Climate significantly mediated the effects of workplace-related injuries on perceptions of work satisfaction. They argue that healthcare managers should be more active in promoting a positive work environment for employees facing injury. Previous research has found a positive relationship between MSC and work satisfaction, including one study (Hayes et al., 1998) which found that management safety practices was among one of the best predictors of job satisfaction.

Work satisfaction represents a positive employee outcome that may be hindered by work stress and work-related strains. As with employee engagement (Bakker & Demerouti, 2014), work satisfaction was expected to be bolstered by meeting job demands with adequate resources, according to the JDR model. In a sample of healthcare professionals, climates supporting employee safety and promoting the prevention of workplace violence should serve as resources to counter the effects of stress caused by workplace violent events, supporting positive employee outcomes. Therefore, the current study proposed that both VPC and MSC would relate positively to work satisfaction.

Hypothesis 3a: Management Safety Climate positively relates to work satisfaction.

Hypothesis 3b: Violence Prevention Climate positively relates to work satisfaction.

Work-related exhaustion. Work-related exhaustion represents emotional and physical manifestations of fatigue related to one's work (Anderzen & Arnetz, 2005; Arnetz, 1998). Using the traditional stress framework (Pratt & Barling, 1988), work-related exhaustion is a type of strain resulting from enduring work stress over time. This strain results from a resource loss spiral (Hobfoll, 1989), due to exceeding job demands that are not met with commensurate job resources (Bakker & Demerouti, 2007). Work-related exhaustion has been positively linked to intent to quit in a sample of nurses, threatening nurse retention (Gardulf et al., 2005), and negatively to work satisfaction in a healthcare sample (Hasson & Arnetz, 2008). The aim of the current study was to test the relationships of MSC and VPC with work-related exhaustion, as potential protective factors serving as environmental resources for employees.

Working in a high-risk industry such as healthcare (BLS, 2015a), workplace violence poses a serious occupational hazard and draws on limited job resources in the midst of other job demands. Also applying the traditional stress framework, previous research has found that Psychological Climate buffers the positive relationship between workplace violence exposure and emotional exhaustion (a component of burnout; Bedi, Courcy, Paquet, & Harvey, 2013), mitigating some of the effects. Other research has investigated relationships between VPC and other outcomes with emotional and physical symptoms, such as depression and anxiety (Spector et al., 2007) and musculoskeletal pain (Yang et al., 2012), finding VPC to relate negatively to these outcomes.

Not only does actual violence contribute to resource loss, but fear of future violence may also draw on employee resources (e.g., Mueller & Tschan, 2011; Spector et al., 2007). Using the JDR model, Nahrgang et al. (2011) meta-analytically tested relationships between job demands, job resources, and outcomes related to workplace safety. They found that occupational risks and hazards were the most consistent job demands across industries, while supportive work

environment was the most consistent job resource across industries. Each related in expected directions with burnout, a form of work-related strain. The results are relevant to the current study as workplace violence represents a prevalent occupational hazard for healthcare workers, while MSC and VPC represent aspects of the work environment that may provide support for at-risk workers, serving as pertinent job resources. In a study of nurses (Dollard et al., 2012), researchers found that (low) Psychological Safety Climate was the primary cause of work-related strains, emphasizing the role that organizational and environmental factors have in the resource loss spiral.

Working under a supervisor who displays a commitment to workplace safety (MSC) and promotes the elimination of workplace violence on their unit (VPC) may provide valuable resources to at-risk employees in healthcare. If these resources are low or absent, employees may need to draw on other, limited resources in order to maintain productivity when faced with workplace violence, contributing to job stress and work-related exhaustion over time. This is due to the mechanisms explained in the COR theory (Hobfoll, 1989; 2001) and the JDR model (Bakker & Demerouti, 2007): when stressors overwhelm available resources, stress can result and ultimately lead to strains over time. It was expected that MSC and VPC would be negatively related to work-related exhaustion, a form of strain.

Hypothesis 4a: Management Safety Climate negatively relates to work-related exhaustion.

Hypothesis 4b: Violence Prevention Climate negatively relates to work-related exhaustion.

Workplace violence exposure. Workplace violence exposure refers to being targeted as a victim of a violent event. Again, workplace violence is described as aggressive acts against employees that range from verbal abuse, threats, and bullying, to physical assault (OSHA, 2002; Jackson et al., 2002). These events are perpetrated by people with various relationships to the employee targeted, the most prevalent of which are patients and their visitors or coworkers.

Targeting these events for future prevention is often difficult due to the varied perpetrators and forms of violence. Nonetheless, supervisors can work toward prevention of these events and their risk factors, providing employees with environmental resources such as MSC and VPC through their attitudes and actions.

Being a target of workplace violence in healthcare has been associated with many negative outcomes, as previously discussed. Exposure of workplace violence is linked positively with absenteeism (Kivimaki et al., 2000; Rowe & Sherlock 2005), intention to quit and actual turnover (Sofield & Salmond, 2003), as well as several health outcomes (e.g., Gates, Gillepie, & Succop, 2011; Spector et al., 2015), and negatively linked with positive outcomes such as work satisfaction (e.g., Hesketh et al., 2003).

Workplace violence exposure has been specifically linked (negatively) to VPC in previous research (e.g., Kessler et al., 2008; Spector et al., 2007; Yang et al., 2012). In previous research, low supervisor commitment to violence prevention significantly predicted exposure to workplace violence for healthcare staff (Lipscomb et al., 2012). One dimension of VPC, pressure against violence prevention, has significantly predicted exposure to physical violence within a nursing sample (Yang et al., 2012). Of importance, that study also found that workplace violence exposure did not change employee perceptions of VPC. Perceptions remained relatively stable regardless of whether employees experienced workplace violence, emphasizing that it is the actions of the supervisor that matter in the perception of this climate, and not so much the outcomes that inform employees about their supervisor's values and practices regarding violence prevention.

MSC relates to workplace violence exposure more indirectly. While VPC measures actions and attitudes specifically aimed at workplace violence, MSC regards safety more generally. However, the practices and procedures housed under this climate may also contribute to the

prevention of workplace violence. For example, hospitals have safety regulations in place for the protection of patients and staff, not necessarily regarding workplace violence, but sometimes aiding in its prevention. One set of safety regulations regards the use of physical restraints on hospital patients (Crisis Prevention Institute, 2009). Safely and appropriately applying restraints under the guidance of those regulations would pertain to actions under MSC, however the use of restraints has been studied and used as a deterrent for patient-perpetrated violence (Arnetz et al., 2015a).

Even in an environment with positive climates for safety and violence prevention, there may still be incidents of workplace violence. Positive climates for reducing workplace violence are expected to reinforce more preventive behaviors in employees, and cultivate a culture that promotes safety norms regarding violence. These preventive behaviors and safety norms should lead to fewer hazards for workplace violence, reducing the occurrence of violent events on the unit. Therefore, it was expected that both MSC and VPC would negatively relate to workplace violence exposure.

Hypothesis 5a: Management Safety Climate negatively relates to workplace violence exposure.

Hypothesis 5b: Violence Prevention Climate negatively relates to workplace violence exposure.

Perception of workplace violence as a problem. This variable represents the perception that workplace violence exposure is a hazard that affects the individual personally (Arnetz, Arnetz, & Petterson, 1996). It was expected that individual perceptions of VPC would negatively relate to perceptions of workplace violence as a problem for the individual. Spector et al. (2007) examined a similar concept: the perceived danger of experiencing either physical or non-physical violence

in the workplace. Their findings supported individual perceptions of VPC as a protective factor for perceptions of violence-related danger. Further, Mueller and Tschan (2011) found perceptions of violence prevention, also at the individual level, to relate negatively to the perceived likelihood of future violent events. It was therefore expected that VPC would relate negatively to perception that workplace violence is a problem personally.

MSC can serve as a protective factor for employees of high-risk units, as they perceive their unit supervisor to be committed to their safety and appropriately respond to adverse events. These adverse events may include workplace violence, or related events such as properly administrating restraints (Crisis Prevention Institute, 2009), as discussed above. It was expected that individual perceptions of MSC would negatively relate to perceptions of workplace violence as a problem for the individual, referred to as the problem of workplace violence from here forth.

Hypothesis 6a: Management Safety Climate negatively relates to the problem of workplace violence.

Hypothesis 6b: Violence Prevention Climate negatively relates to the problem of workplace violence.

Mediation of VPC on MSC

Supervisors are typically responsible for responding to adverse events on their work unit, and their actions contribute to a unit-specific climate and culture for safety and violence prevention. As previously discussed, there may be a difference in proximity to certain outcomes for these two related outcomes. In the context of a healthcare sample, which is at increased risk for workplace violence in their daily work (BLS, 2015a), VPC may be more closely related to their work satisfaction and work-related exhaustion.

As proposed (Hypothesis 1), MSC was expected to relate positively to VPC, as supervisors who engage in practices and attitudes promoting safety on their work unit are likely to extend those behaviors and values to the prevention of workplace violence. However, there is an important distinction between the types of hazards associated with MSC versus VPC. Safety hazards under MSC are inherent to the workplace, such as needlestick injuries and musculoskeletal strains in hospitals (Janocha & Smith, 2010). These hazards are federally regulated by institutions such as OSHA, The Centers for Disease Control and Prevention (CDC), and JCAHO (e.g., CDC, 2015; OSHA, 2013; The Joint Commission, 2012), and therefore tend to be heavily monitored and reported on within a hospital setting. Procedures and best practices exist to aid employees in the prevention of these expected hazards at work. There are tangible consequences of these hazards occurring on a work unit (e.g., safety reports), likely reflecting poorly on the unit supervisor, who is responsible for their prevention and handling. Therefore, supervisors are required, at least in some faculty, to manage these safety hazards, and the degree to which they do so is likely represented in their subordinates' perceptions and ratings of MSC.

In contrast, workplace violence hazards are not inherent to the workplace and are generally unregulated. Dealing with physical and verbal assaults is not part of the job description for most healthcare workers. This represents an extraneous stressor that is prevalent in hospital settings and warrants some form of protection for employees. While there is growing recognition at the federal level of this occupational hazard, and formal recommendations for its prevention (e.g., CDC, 2006; JCAHO, 2012; OSHA, 2015), there are no equivalent systems in place to monitor and regulate this hazard. Most hospitals also lack surveillance systems for reporting workplace violence (Arnetz et al., 2015b), leaving it entirely at the discretion of the unit supervisor to manage workplace violence. Supervisors may choose to prioritize VPC on their units, despite pressures to allocate

resources toward regulated occupational hazards and productivity goals. Therefore, employees on a unit with high ratings of VPC may perceive their supervisor to value their safety above and beyond what is required for regulated occupational hazards.

The above distinctions were made in order to propose a partial mediation between the two forms of psychological climate. Both MSC and VPC were expected to relate directly to the four outcomes, as proposed in previous hypotheses. However, VPC was expected to be more proximally related to the outcomes based on the different nature of the hazards and actions on the part of the unit supervisors. It was expected that VPC would partially mediate the effects of MSC on all four outcomes.

Hypothesis 7a: Violence Prevention Climate partially mediates the relationship between Management Safety Climate and work satisfaction.

Hypothesis 7b: Violence Prevention Climate partially mediates the relationship between Management Safety Climate and work-related exhaustion.

Hypothesis 7c: Violence Prevention Climate partially mediates the relationship between Management Safety Climate and workplace violence exposure.

Hypothesis 7d: Violence Prevention Climate partially mediates the relationship between Management Safety Climate and the problem of workplace violence.

CHAPTER 2 METHOD

The current study tested the causal model using two samples. Sample 1 was recruited from a general healthcare worker population across multiple organizations, and the data was collected using a cross-sectional, online survey. Sample 2 data was collected during a previous study of violence in healthcare. Hospital employees within 42 work units of a single hospital system responded to a confidential paper and pencil survey that included shortened versions of published scales. The two samples provided distinct opportunities for testing and cross-validating the causal model. Sample 1 included full, validated measures for each variable, though the participants did not belong to the same work unit or organization. Sample 2 was measured using some shortened scales, but provided a unique insight into the practicality of this model within a single hospital system. Either sample alone would have provided a limited test of the hypotheses due to the varied organizational membership of Sample 1 and limitations of measures used in Sample 2. Using both samples provided the opportunity for more robust tests of the study hypotheses than either sample would alone. Ethical approval for this study was granted by the Institutional Review Board at Wayne State University and the Research Review Council of the hospital system.

Participants and Procedure

Sample 1. Participants of Sample 1 were either enrolled in an undergraduate psychology research pool of a large university or Amazon Mechanical Turk (MTurk) workers. To qualify, they had to be at least 18 years of age and currently employed at least part time as a healthcare worker in the United States. Each participant pool was pre-screened for qualification before being invited to participate in the survey. The target sample size was a minimum of 200 participants, according to recommendations for achieving an acceptable level of power for structural equation modeling (Kline, 2015).

A questionnaire was developed online using Qualtrics software. Users of MTurk first completed a short pre-screen questionnaire (n = 504), which asked whether they were currently working, if they were in the healthcare field, what their job title was, and how many hours per week they worked. Qualified participants were currently working in healthcare at least 20 hours per week (n = 298). Users of the undergraduate psychology research pool completed a comprehensive pre-screen questionnaire when they enrolled in the research pool. Users who endorsed that they were 18 years of age or older and currently working in healthcare at least part-time were qualified to participate (n = 45).

Qualified participants were directed to a screen with the information sheet and provided their consent by responding to the questionnaire. The questionnaire focused on the variables outlined in the introduction: MSC, VPC, work satisfaction, work-related exhaustion, workplace violence exposure, and the problem of workplace violence. Respondents using the undergraduate psychology research pool (n = 43, 95.6% response rate) were given credit toward a course requirement upon their completion. Those using MTurk (n = 188, 63.1% response rate) were compensated for their participation with a small amount of money credited to their MTurk account. The overall response rate was 67.3%.

Missing data were analyzed using a complete case approach (Tabachnick & Fidell, 2007), in which participants missing more than 20% of data were removed from the sample (n = 2). There were no observed patterns of missing data across study variables. Two Insufficient Effort Responding (IER; Huang, Curran, Keeney, Poposki, & DeShon, 2012) items were used to screen for careless response. Respondents who answered both incorrectly were removed from the sample (n = 5). The final sample consisted of 224 participants.

Participants in Sample 1 were mostly female (66.5%), with a mean age of 32.2 years. The sample was racially diverse: 67.4% White/European American, 11.6% Black/African American, 9.8% Asian/Pacific Islander, 4.9% Arab/Middle Eastern, 4.5% Hispanic/Latino(a), and 0.9% Native American. The majority of participants had 0-5 years of tenure in healthcare (47.3%) and within their organization (69.2%), and most were not supervisors (57.6%). Prevalent job titles were Registered Nurse (18.8%), Certified Nursing Assistant (13.8%), and Medical Assistant (11.2%). A summary of Sample 1 demographics is provided in Table 1.

Sample 2. The setting for the second sample was a large hospital system in the Midwestern United States, comprised of eight hospitals and approximately 15,000 employees. Participants were employees of 42 work units considered to be at high risk for workplace violence (Arnetz et al., 2014). This hospital system uses a central, electronic reporting tool accessible from any hospital computer to collect incident reports of any adverse events, including workplace violence (Arnetz et al., 2011a). Reporting of workplace violence is encouraged by top management of the hospital system through formal policies and training. There is a Zero Tolerance policy for violence perpetrated by anyone. Employees are required to complete an online training module on workplace violence. Unit supervisors are responsible for reviewing reports of all adverse events, including all types of workplace violence, occurring on their work unit. Unit supervisors are also responsible for instating unit-specific policies and training for their staff.

As part of a larger project on workplace violence in hospital settings, 42 units were identified as being at increased risk of workplace violence. The units were identified using a Hazard Risk Matrix (CDC/NIOSH, 2003), adapted to the hospital setting and based on three years of data. These data were based on the probability of occurrence for workplace violence and the severity of previous events within each unit (Arnetz et al., 2014). Units were randomized into the

control (n = 21) and intervention (n = 21) conditions using a block design. The block design was used in order to be representative of the different types of units within the hospital system. Unit types were acute care nursing, intensive care nursing, surgery, psychiatry, emergency departments, and security. Within each of the six blocks, pairs of units were randomized to one of the conditions. The current study used data from the pre-intervention employee questionnaire,[1] completed by intervention and control units. The questionnaire sample comprised 446 hospital employees across 42 hospital units and eight hospitals.

Workers in the 42 at-risk units received paper questionnaires, mailed to their home addresses (N = 2,010). A total of 446 employees responded, for a response rate of 22.2%. Questions centered on experiences of workplace violence, work outcomes, and perceptions of safety for workplace violence on their work unit and at their hospital. A business reply envelope was included with the package containing the questionnaire, and employees were asked to mail their responses to the researchers. For responding, participants received one $10 Target gift card via mail to their home address. Researchers entered the handwritten responses into an electronic database.

The participants of Sample 2 were mostly female (82.2%) with a mean age of 42.99 years, representative of the employee population at this hospital system. This sample was also racially diverse: 60.2% White/European American, 30.4% Black/African American, 5.9% Asian/Pacific Islander, 2.0% Hispanic/Latino(a), and 1.3% of multiple races. The majority of participants had over 15 years of tenure in healthcare (40.9%), 0-5 years of tenure at this hospital system (41.7%), and were not supervisors (90.8%). The most prevalent job titles were Registered Nurse (60.4%), Security Officer (9.2%), and Patient Care Associate (7.7%). A summary of Sample 2 demographics is provided in Table 2.

[1]Only pre-intervention questionnaires were used in order to control for intervention effects that may have contributed to differences in response between the intervention and control units later in the study.

Measures

Management Safety Climate. In Sample 1, MSC was measured using the 16-item group-level safety climate scale by Zohar and Luria (2005). This scale was developed based on interactions between direct supervisors and their subordinates relative to safety climate, derived from interaction modes described in the People subscale of the Dictionary of Occupational Titles (1991). Based on a similar scale (Zohar, 2000), the items represent various ways in which supervisors signal the prioritization of safety versus competing goals (e.g., productivity) through their contact with subordinates. The items cover three content themes: active practices (monitoring, enforcing), proactive practices (promoting learning, development), and declarative practices (declaring, informing). However, the items are not part of distinct subscales. Response options were rated on a five-point Likert-type scale with options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item was, "My supervisor discusses how to improve safety with us." Using Cronbach's Alpha, the reliability of this scale was 0.95; scale items are presented in Appendix A.

Sample 2 measured MSC using a 3-item scale adapted from a large battery of scales on patient safety culture (Sorra & Nieva, 2004). Instructions asked participants to think about their work unit when responding. Responses were on a five-point Likert-type scale with options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item was, "The actions of unit management show that workplace safety is a top priority." The reliability of this scale was 0.63. This moderately low internal consistency is due to one item that was not correlated with the other two items, presumably based on its distinct wording and reverse scoring. When this item was excluded from the scale, the reliability reached 0.93. However, this third item was retained in order to form a latent factor for MSC (as three indicators are required to achieve model identification),

rather than using a composite indicator as the exogenous variable in the model. All scale items are presented in Appendix B, with a footnote marking the item with a low factor loading. This 3-item scale was also measured in Sample 1 in order to examine the correlation between the longer and shorter scales, for more accurate comparison between the two.

Violence Prevention Climate. In Sample 1, VPC was assessed using the 12-item scale by Yang et al. (2012). This scale contains three subscales with four items each: violence practices and response, violence policies and procedures, and pressure against violence prevention. Instructions for this scale asked participants to think about their unit supervisor when responding. Responses were on a five-point Likert-type scale with options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item was, "Management encourages employees to report physical violence'' (violence practices and response). This scale had a reliability of 0.88; scale items are presented in Appendix C.

In Sample 2, VPC was measured using the 4-item subscale of violence practices and response from Yang et al. (2012). The full scale was not included in the employee questionnaire in order to limit the length of the questionnaire, to promote the response rate in a worker population with demanding work schedules. This particular subscale was chosen due to its relevance to enacted values of VPC, representing the actual priorities surrounding workplace violence (Zohar, 2000; 2003). Instructions directed participants to think about their hospital as the referent when responding. Responses were on a five-point Likert-type scale with options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The reliability of this subscale was 0.90. Subscale items are presented in Appendix D. This 4-item subscale was measured in Sample 1 as part of the overall VPC scale, and the correlation between this subscale with the full scale was examined.

Work satisfaction. Both samples measured work satisfaction using a 3-item scale (Cammann, Fichman, Jenkins, & Klesh, 1983). Responses were on a five-point Likert-type scale with options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item was, "All in all, I am satisfied with my job." This scale had a reliability of 0.91 in Sample 1 and 0.87 in Sample 2; scale items are presented in Appendix E.

Work-related exhaustion. Both samples used the 3-item Work-Related Exhaustion subscale of the Quality, Work, Competence Scale (QWC; Anderzen & Arnetz, 2005; Arnetz, 1998). Responses were on a five-point frequency scale with options ranging from 1 (*never*) to 5 (*daily*). Scoring for QWC subscales uses a formula to convert the scale mean to a percentile score based on the scale mean. A sample item was, "I feel tired when I think about work." This scale had a reliability of 0.91 in Sample 1 and 0.90 in Sample 2; scale items are presented in Appendix F.

Workplace violence exposure. In each sample, workplace violence exposure was measured using a single item regarding their experience of being a target of workplace violence over the past year. Use of a single item to capture exposure to workplace violence is a somewhat common practice in the healthcare violence research literature (Spector et al., 2015). Scales for workplace violence exposure typically ask about specific forms of workplace violence, and may leave out examples that would otherwise have been caught using a more general, single item measure. The instructions provided a brief definition of workplace violence as acts or threats of physical or verbal aggression. Response options were on a frequency scale from 1 (*No, never*) to 3 (*Yes, several times*). The single item was, "Have you been a target of violence or aggression at work during the past year?"

Problem of workplace violence. Both samples used a single item to assess the perception that workplace violence is a problem for the employee, personally. This item was adapted from a previous study on workplace violence (Arnetz, Arnetz, & Petterson, 1996). Responses were on a four-point scale with options ranging from 1 (*yes, definitely*) to 4 (*no, not at all*), and were reverse-coded. The single item was, "Is workplace violence in your unit a problem for you personally?"

Negative affectivity. In Sample 1, negative affectivity was measured as a control variable using the ten-item sub-scale of the PANAS scale (Watson, Lee, & Auke, 1988). This is a frequency scale that measures how often participants feel negative emotions, in general. An example emotion was, "hostile." Response options were on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*almost always*). The reliability of this scale was .91; scale items are presented in Appendix G.

Demographics. In Sample 1, demographic variables were collected on gender, age, tenure, job title, and whether they hold a supervisory position. Participants were also asked if their workplace has established routines for reporting workplace violence, and if they have experienced or witnessed workplace violence in their current job. In Sample 2, demographics collected included gender, age, tenure, job title, their work unit, and whether they held a supervisory position.

Insufficient effort responding. In order to screen for participants who may not be paying attention throughout the survey, two IER items were used in Sample 1. Each item stated, "Please select strongly agree for this item." Each item was embedded within the two longest study scales (MSC and VPC). Responses were on a five-point Likert-type scale with options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Data Analysis

Structural equation modeling was used to test the causal model using each sample, using the maximum likelihood estimation in *MPlus* version 6.11. Sample 1 and Sample 2 were tested

separately, using the methods outlined in the following sections. First, a Confirmatory Factor Analysis was estimated to examine factor loadings, discriminant validity, and relationships between factors. Second, parcels were formed for Sample 1 using factor loadings from the Confirmatory Factor Analysis. Third, nested structural models were compared to a fully-saturated baseline model using Chi Square difference tests. Finally, a structural model was retained and hypotheses were tested based on the significance and direction of structural paths between factors, as well as the significance of bootstrapping for indirect effects, or partial mediation.

Confirmatory Factor Analysis. First, Confirmatory Factor Analysis (CFA) was estimated in order to examine the factor structure of the study scales, to examine discriminant validity (Hypothesis 1), and to obtain the correlations between factors (Hypothesis 2). Factor loadings and statistical significance of scale items were examined for each corresponding factor. Scale items were used as indicators. Single-item factors (workplace violence exposure and the problem of workplace violence) had their factor loadings fixed to one and errors fixed to zero in order to achieve identification. Standardized factor loadings and factor correlations were obtained from the CFA models for each sample.

Parceling. Partial disaggregation of factors, or parceling, was used to measure some of the factors within the structural model of Sample 1. This method combines multiple items of a scale into composite indicators. Reasons for parceling can include moderate sample size or a large number of scale items. In Sample 1, MSC and VPC underwent partial disaggregation due to their large number of items (sixteen and twelve, respectively). There are multiple methods for choosing which items to parcel together (Williams & O'Boyle, 2008). When there are subscales to be parceled, two main approaches are typically used: the domain representativeness approach and the internal consistency approach (Kishton & Widaman, 1994; Williams & O'Boyle, 2008). The

domain representativeness approach aims to include all aspects of the scale as a whole within each parcel. This means that subscales are not divided into single composites, but rather are shared as equally as possible among the parcels in order to represent the scale holistically within each parcel. Using this technique is appropriate when the subscales are highly correlated with each other and their overall scale. The item-to-construct balance method would then be used to populate the parcels. This method uses the standardized factor loadings found in the CFA results, seeding each parcel with the items with the highest factor loadings, then adding items in reverse order based on the next highest factor loadings, until no items remain. However, if the subscales have low to moderate correlations with each other and the overall scale, the internal consistency approach may be more appropriate (Kishton & Widaman, 1994). This approach parcels the items of each subscale into their own composite indicators, forming parcels that reflect the individual subscales rather than the overall scale. Each method was used for Sample 1, employing the domain representativeness approach for MSC and the internal consistency approach for VPC. The details of those decisions and specific methods are described in the Results section.

Structural model and hypothesis testing. Hypothesis testing was conducted using structural equation modeling. First, a baseline model was constructed within each sample. This model included the parcels as indicators for Sample 1. Structural paths were placed between factors, with directional relationships. This baseline model used the maximum degrees of freedom while also including the parcels. Nested models were examined by removing one path at a time, creating a difference of one degree of freedom from the baseline model. Chi square difference tests examined whether each of the nested models was statistically different from the baseline model. If the chi-square difference test revealed a model to be statistically equivalent to the baseline

model, the nested model was retained based on the principle of parsimony (Kline, 2015), as it consumed fewer degrees of freedom.

Global fit indices were obtained for structural models as well, in order to examine the overall fit of the structural model. These fit indices included the Comparative Fit Index (CFI; Bentler, 1990; Bentler & Bonnet, 1980) with a cut-off for "acceptable fit" of 0.95 or greater, the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) with "acceptable fit" at 0.07 or less, and the Standardized Root Mean Square Residual (SRMR; Hu & Bentler, 1999) with "acceptable fit" at 0.08 or less. In order to evaluate path fit within the structural model, the RMSEA-P (O'Boyle & Williams, 2011) was calculated for the retained models, with "acceptable fit" at 0.08 or less.

Hypotheses regarding the direct relationships between study variables (Hypotheses 2 – 6b) were tested based on the significance and direction of structural paths in the retained model. To test for indirect effects of the proposed mediation between VPC and MSC (Hypotheses 7a – 7d), case replacement bootstrapping (5,000 draws) was used to estimate the significance of the effect sizes (Preacher & Hayes, 2004).

Alternate model testing was conducted in order to examine the viability of alternate model structures. MSC and VPC were reversed, placing VPC as the exogenous predictor and MSC as the mediator. Model fit was estimated for each sample using this reversed order of the exogenous variables while keeping the direct and indirect paths identical to those of the retained models. Since the reversed models were not nested under the retained models, they were unable to be compared using the chi-square difference test. Instead, the Akaike Information Criterion (AIC) of each model was compared. Models with a lower AIC value are considered to have better fit (Kline, 2015).

CHAPTER 3 RESULTS

Descriptive Statistics

The assumptions for normality were met for all scales in both samples, with no significant skewness or kurtosis in any variable distribution (Gravetter & Wallnau, 2016). In Sample 1, the overall means for MSC and VPC fell slightly above the midpoint of the scales. Workplace violence exposure was somewhat low on the scale, approximately 0.5 points below the midpoint. The problem of workplace violence also fell somewhat low on the scales, however the mean for work satisfaction was relatively high. Work-related exhaustion was slightly above the midpoint, and negative affectivity was below the midpoint. Table 3 provides a summary of these results.

In Sample 2, the overall mean for MSC fell near the midpoint of the scale, while VPC was just above the midpoint. Workplace violence exposure was closer to the scale midpoint for this sample, yet problem of workplace violence was somewhat low on the scale. Work satisfaction was just above the midpoint of the scale, as well as work-related exhaustion. Table 4 provides a summary of these results.

Scales were compared between samples to assess whether there were any significant mean differences. MSC and VPC were measured using different scales in each sample, therefore their means could only be compared descriptively. The means for MSC were higher in Sample 1 than Sample 2 (3.76 and 3.07, respectively). The means for VPC were higher in Sample 1 than Sample 2 (3.85 and 3.55, respectively). Since Sample 1 also measured the scales used in Sample 2, an independent samples t-test was conducted to compare mean differences between these equivalent scales. The mean for MSC was significantly higher in Sample 1, $t(667) = -6.65$, $p < 0.001$, as was the mean for VPC, $t(668) = -8.50$, $p < 0.001$. However, it should be reiterated that these versions of MSC and VPC were not used to estimate any models in Sample 1.

The outcome variables were measured using equivalent scales in each sample, and were therefore able to be directly compared using independent samples t-tests. Work satisfaction was not significantly different between samples, $t(668) = 1.39$, $p = 0.17$. Work-related exhaustion was not significantly different between samples, $t(668) = 1.56$, $p = 0.12$. The problem of workplace violence was also not significantly different between samples, $t(668) = 1.46$, $p = 0.15$. There was a significant difference found in workplace violence exposure, as discussed below.

Of importance, this study focused on a worker population at increased risk for workplace violence in the United States (BLS, 2015a; Gillespie et al., 2010). Therefore, the descriptive statistics were examined for the frequency of workplace violence exposure in each sample. In Sample 1, $n = 91$ (40.63%) respondents endorsed that they had been a target of workplace violence at least once in the previous 12 months. In Sample 2, $n = 275$ (61.66%) of respondents endorsed being targeted. In order to test for significant differences between the two samples, an independent samples t-test was conducted. Results showed that Sample 2 had significantly more workplace violence exposure than Sample 1, $t(658) = -22.42$, $p < 0.001$.

Inter-Variable Correlations

For both samples, zero-order correlations between study variables were in the expected directions and all were significant at alpha level 0.01. In Sample 1, the measures of MSC and VPC had a Pearson correlation of $r = 0.60$, providing initial evidence for Hypotheses 1 and 2, that MSC and VPC are positively related yet distinct constructs. A correlation of 0.60 is moderate, yet low enough to be under the accepted cutoff of 0.85 for discriminant validity (Kline, 2015). Negative affectivity was significantly correlated with all study variables in Sample 1 and was therefore retained as a control variable. The correlations between the longer and shorter versions of the scales were examined in Sample 1; the VPC scales were correlated at $r = .83$, $p < .01$; the MSC

scales were correlated at $r = .68$, $p < .01$. Table 5 provides zero-order correlations between study and control variables for Sample 1, with scale reliabilities along the diagonal. In Sample 2, the Pearson correlation between the measures of MSC and VPC was $r = 0.59$, again providing initial support for Hypotheses 1 and 2. Table 6 provides zero-order correlations between study variables for Sample 2, with scale reliabilities along the diagonal.

Some correlations among the three subscales of VPC were not highly correlated with each other or the overall scale. Subscale 1 (violence practices and response) was correlated at 0.61 with Subscale 2 (violence policies and procedures), at 0.34 with Subscale 3 (pressure against violence prevention), and at 0.83 with the overall scale. Subscale 2 was correlated at 0.16 with Subscale 3 and 0.76 with the overall scale. Subscale 3 was correlated at 0.69 with the overall scale. Due to some of the moderate to low correlations among the subscales and overall scale, parcels were formed using the internal consistency approach for VPC in Sample 1. This method is outlined in more detail below.

Confirmatory Factor Analysis

In order to test Hypothesis 1, two Confirmatory Factor Analysis (CFA) models were estimated in order to test for discriminant validity between MSC and VPC. First, a one-factor model was tested in which all scale items of MSC and VPC loading on a single factor. Next, a two-factor model was tested in which MSC scale items loaded on a single factor and VPC scale items loaded on a second factor. In Sample 1, the fit of the one-factor model was $\chi^2(350) = 1697.03$, $p < .001$; RMSEA = 0.13; CFI = 0.69; SRMR = 0.11; the fit of the two factor model was $\chi^2(349) = 1282.19$, $p < .001$; RMSEA = 0.11; CFI = 0.79; SRMR = 0.09. The two factor model had significantly better global fit, with a chi square difference of $\Delta\chi^2(1) = 414.84$, $p < .001$, providing support for Hypothesis 1 in this sample.

However, the poor global fit indices of the two factor model prompted further examination of the relationships between items. It was noted that some of the VPC items were not highly correlated with each other, and there were significant correlations between the residuals of several VPC items with MSC items. Specifically, the items of the third subscale of VPC had standardized factor loadings that ranged from 0.18 to 0.45. Therefore, another two-factor model was estimated in which the VPC items were parceled into three second-order latent factors by subscale, and set to load on a third-order latent factor, VPC. The global fit of the two-factor model using this higher order structure was significantly improved: $\chi^2(346) = 684.916$, $p < .001$; RMSEA = 0.07; CFI = 0.92; SRMR = 0.06, with a chi-square difference of $\Delta\chi^2(3) = 597.27$, $p < .001$. All of the standardized factor loadings for VPC items increased when loaded within separate factors, with all ranging from 0.73 to 0.90. The correlation between MSC and VPC also increased from $r = 0.68$ to $r = 0.73$, still below the accepted threshold of $r = 0.85$ for evidence of discriminant validity (Kline, 2015).

In Sample 2, the fit of the one-factor model was $\chi^2(14) = 389.12$, $p < .001$; RMSEA = 0.25; CFI = 0.81; SRMR = 0.06; the fit of the two factor model was significantly better: $\chi^2(13) = 72.39$, $p < .001$; RMSEA = 0.10; CFI = 0.97; SRMR = 0.03, with a chi-square difference of $\Delta\chi^2(1) = 316.73$, $p < .001$. Using the chi-square difference test, both samples had significantly better fit using the two-factor model. Therefore, the two-factor model was retained, supporting Hypothesis 1 that MSC and VPC are psychometrically distinct. Overall, Hypothesis 1 was supported across the samples.

In order to test Hypothesis 2, CFA models were estimated for each sample including all substantive variables. A measurement model was first estimated for each sample, using scale items as indicators for all latent variables. Using the standardized factor loadings from the CFA in

Sample 1, parcels were formed for MSC and VPC. The 16-item MSC scale was parceled using the item-to-construct balance approach. Since there were no distinct subscales, all items were parceled based on their standardized factor loadings from the CFA in Sample 1. Four parcels were formed, with four items each. The 12-item VPC scale was parceled using the item-to-construct balance approach. Since some of the correlations between the subscales and overall scale were low to moderate, it was determined that the internal consistency approach was most appropriate. Parcels were formed for each subscale, using the four items of each to populate each parcel. The three subscales were modeled as second-order latent variables nested under a third-order latent variable: overall VPC. A higher order CFA was then estimated for Sample 1, using four parcels for MSC and the described higher order structure for VPC.

Tables 7 and 8 provide the standardized factor loadings from the CFA results of Sample 1 and Sample 2, respectively. The fit of the higher order CFA for Sample 1 was $\chi^2(254) = 460.47$, $p < .001$; RMSEA = 0.06; CFI = 0.94; SRMR = 0.06. In Sample 2, the fit of the CFA was $\chi^2(77) = 227.02$, $p < .001$; RMSEA = 0.07; CFI = 0.96; SRMR = 0.04. The correlation between MSC and VPC was examined within the context of those models. The correlation between MSC and VPC was $r = 0.73$, $p < .001$ in both samples, supporting Hypothesis 2 that they were positively related. This result further supported Hypothesis 1 that MSC and VPC were psychometrically distinct, as the correlation falls below a suggested cutoff of 0.85 (Kline, 2015).

Structural Model and Hypothesis Testing

The remaining hypotheses (Hypotheses 3a – 7d) were tested using structural equation modeling. First, a fully saturated model was developed for each sample by adding directional paths between variables in their CFA model; this was used as a baseline to compare nested models. In Sample 1, negative affectivity was added to the model, and the higher order structure of VPC was

also used. The fit of the baseline model for Sample 1 was $\chi^2(254) = 460.47$, $p < .001$; RMSEA = 0.06; CFI = 0.94; SRMR = 0.06. The baseline model for Sample 2 had a fit of $\chi^2(77) = 227.02$, $p < .001$; RMSEA = 0.07; CFI = 0.96; SRMR = 0.04.

Next, nested models were tested by conducting a series of structural models omitting one or more structural paths, then conducting a chi-square difference test against the baseline model. The nested model that was statistically equivalent to each sample's baseline model, with the greatest degrees of freedom, was retained. For Sample 1, the retained model (Figure 2) excluded direct paths from MSC to workplace violence exposure, the problem of workplace violence, and work-related exhaustion. This model had acceptable global fit $\chi^2(257) = 464.15$, $p < .001$; RMSEA = 0.06; CFI = 0.95; SRMR = 0.06. The calculated RMSEA-P for this model was .06, indicating acceptable overall structural path fit. See Table 9 for final, standardized path coefficients, indirect effect estimates, and the statistical significance of each. The R-Square values for each outcome variable were as follows: VPC, $R^2 = .66$, $p < .001$; work satisfaction, $R^2 = .52$, $p < .001$; work-related exhaustion, $R^2 = .29$, $p < .001$; workplace violence exposure, $R^2 = .14$, $p < .01$; the problem of workplace violence, $R^2 = .14$, $p < .01$.

For Sample 2, the retained model (Figure 3) also excluded the direct path from MSC to workplace violence exposure, similar to Sample 1. This model also had acceptable global fit $\chi^2(78) = 227.05$, $p < .001$; RMSEA = 0.07; CFI = 0.96; SRMR = 0.04. The calculated RMSEA-P for this model was .07. See Table 10 for final path coefficients, indirect effect estimates, and the statistical significance of each. The R-Square values for each outcome variable were as follows: VPC, $R^2 = .54$, $p < .001$; work satisfaction, $R^2 = .29$, $p < .001$; work-related exhaustion, $R^2 = .16$, $p < .001$; workplace violence exposure, $R^2 = .11$, $p < .001$; the problem of workplace violence, $R^2 = .29$, $p < .001$.

Hypothesis 3a posited that MSC would be positively related to work satisfaction. This path was significant and positive in Sample 1 (β = .31, p < .01) and Sample 2 (β = .28, p < .001), providing support for Hypothesis 3a in both samples. Hypothesis 3b posited that VPC would be positively related to work satisfaction. This path was significant and positive in Sample 1 (β = .32, p < .01) and Sample 2 (β = .29, p < .001), providing support for Hypothesis 3b in both samples.

Hypothesis 4a posited that MSC would be negatively related to work-related exhaustion. The retained model for Sample 1 did not include a direct path between MSC and work-related exhaustion, therefore Hypothesis 4a was not supported in Sample 1. However, there was a significant, negative path from MSC to work-related exhaustion in Sample 2 (β = -.23, p < .01), supporting Hypothesis 4a in this sample. Overall, Hypothesis 4a was partially supported. Hypothesis 4b posited that VPC would be negatively related to work-related exhaustion. There was a significant, negative path from VPC to work-related exhaustion in Sample 1 (β = -.35, p < .001) and Sample 2 (β = -.21, p < .01), supporting Hypothesis 4b in both samples.

Hypothesis 5a posited that MSC would be negatively related to workplace violence exposure. In both Sample 1 and Sample 2, the retained models did not include a direct path from MSC to workplace violence exposure. Therefore, Hypothesis 5a was not supported. Hypothesis 5b posited that VPC would be negatively related to workplace violence exposure. There was a significant, negative path from VPC to workplace violence exposure in Sample 1 (β = -.17, p < .05) and Sample 2 (β = -.33, p < .001), supporting Hypothesis 5b in both samples.

Hypothesis 6a posited that MSC would be negatively related to the problem of workplace violence. The retained model for Sample 1 did not include a direct path between MSC and the problem of workplace violence, therefore Hypothesis 6a was not supported in Sample 1. However, there was a significant, negative path from MSC to the problem of workplace violence in Sample

2 (β = -.21, p < .001), supporting Hypothesis 6a in this sample. Overall, Hypothesis 6a was partially supported. Hypothesis 6b posited that VPC would be negatively related to the problem of workplace violence. There was a significant, negative path from VPC to the problem of workplace violence in Sample 1 (β = -.22, p < .01) and Sample 2 (β = -.37, p < .01), supporting Hypothesis 6b in both samples.

Hypothesis 7a posited that VPC would partially mediate the relationship between MSC and work satisfaction. This hypothesis was not supported in Sample 1, as there was a non-significant indirect effect of MSC on work satisfaction via VPC as a mediator (ab = .25, p = .26). Sample 2 produced a significant, positive indirect effect of MSC on work satisfaction via VPC as the mediator (ab = .15, p < .05), supporting Hypothesis 7a in this sample. Overall, partial support was found for Hypothesis 7a.

Hypothesis 7b posited that VPC would partially mediate the relationship between MSC and work-related exhaustion. There was a significant, negative indirect effect of MSC on work-related exhaustion via the mediator VPC in Sample 1 (ab = -.33, p < .001); however, this model did not include a direct path between MSC and work-related exhaustion, and this result provided evidence for full (and not partial) mediation. Hypothesis 7b was supported in Sample 2, as there was a significant direct and indirect path from MSC to work-related exhaustion via the mediator VPC (ab = -.15, p < .05). Overall, partial support was found for Hypothesis 7b.

Hypothesis 7c posited that VPC would partially mediate the relationship between MSC and workplace violence exposure. This hypothesis was not supported in Sample 1, as there was a non-significant indirect effect of MSC on workplace violence exposure via VPC as the mediator (ab = -.09, p = .07). However, Sample 2 produced a significant, negative indirect effect of MSC on workplace violence exposure via VPC as the mediator (ab = -.18, p < .001). Given that the

retained model in Sample 2 did not include a direct path between MSC and workplace violence exposure, this result provided support for full (and not partial) mediation in Sample 2. Overall, Hypothesis 7c was not supported.

Hypothesis 7d posited that VPC would partially mediate the relationship between MSC and the problem of workplace violence. There was a significant, negative indirect effect of MSC on the problem of workplace violence via the mediator VPC in Sample 1 (ab = -.16, $p < .05$); however, this model did not include a direct path between MSC and the problem of workplace violence, and this result provided evidence for full (and not partial) mediation. However, Hypothesis 7d was supported in Sample 2, as there was a significant direct and indirect path from MSC to the problem of workplace violence via VPC (ab = -.23, $p < .001$) in that model. Overall, partial support for Hypothesis 7d was found. Table 11 provides a summary of whether each hypothesis was supported by data from each sample.

Alternate model testing. In order to examine the viability of alternate model structures, additional models were tested in which the predictor and mediator were reversed. MSC became the mediator for the relationships between VPC and the outcomes, while retaining the same direct and indirect paths that were supported in the original, retained models. For Sample 1, VPC was directly related to MSC and work satisfaction, while indirectly related to all other outcomes. MSC served as the mediator of VPC to all outcomes. The reversed model had a fit of $\chi^2(257) = 462.63$, $p < .001$; RMSEA = 0.06; CFI = 0.95; SRMR = 0.06. The AIC of the original, retained model was 13189.27, and the AIC of the reversed model was 13187.75. The lower AIC of the reversed model indicated that there may be better global fit for this variable order. Path estimates, correlations, and R-square values were further examined between the two models.

The R-square values were almost equivalent between the original and reversed order models, with slightly higher values in the original order. Examination of the standardized path estimates revealed that VPC and work satisfaction were no longer significantly related (β = .21, p = .06), nor were MSC and negative affectivity (β = .05, p = .49), which had been significantly, negatively correlated in the original model (r = -.32, p < .001). The sign flip between MSC and negative affectivity indicated that there may be a suppression effect. Negative affectivity was significantly, negatively related to both MSC and VPC in the original order, in which it was set to correlate with MSC and directly relate to VPC. Although there was evidence of discriminant validity between MSC and VPC, there may still be issues with collinearity. When the two predictors were reversed, negative affectivity had a stronger, negative correlation with VPC (r = -.48, p < .001) and the standardized path coefficient between MSC and VPC was inflated (β = .78, p < .001) compared to the coefficient in the original order (β = .69, p < .001). Taken together, this evidence pointed to negative affectivity as a potential suppressor.

Two additional models were tested in which negative affectivity was removed as a control variable. The original order model and the reversed order model were estimated again without including negative affectivity. This was done in order to compare the changes in the model estimates while avoiding a suppression effect. In the original order, with VPC as the mediator, the fit of the retained model was $\chi^2(239) = 449.85$, p < .001; RMSEA = 0.06; CFI = 0.95; SRMR = 0.06, with an AIC of 12741.02. The fit of the reversed order model was $\chi^2(239) = 449.18$, p < .001; RMSEA = 0.06; CFI = 0.95; SRMR = 0.07, with an AIC of 12748.35. This indicated better global fit for the original order of variables after removing negative affectivity. However, the R-square values of this model were much lower than in the original model which included negative

affectivity. This evidence supported the retention of the original order model including the control variable.

For Sample 2, a reversed order model was estimated in which VPC was directly related to MSC and all outcomes except for workplace violence exposure. MSC served as a mediator for all outcomes. This reversed model had a fit of $\chi^2(78) = 243.73$, $p < .001$; RMSEA = 0.07; CFI = 0.96; SRMR = 0.05, with an AIC of 16019.47. The original, retained model had a lower AIC of 16002.79, providing evidence that the original model may have better global fit. Path coefficients, correlations, and R-square values were examined between the models. In the reversed order model, the R-square values were reduced. The largest change in R-square was in workplace violence exposure, from $R^2 = 0.11$ in the original order to $R^2 = 0.07$ in the reversed order. Standardized path coefficients were similar and in the same direction, with some small changes in the level of significance.

CHAPTER 4 DISCUSSION

This study examined the relationship between MSC and VPC and their relations with several important outcomes in the context of the healthcare worker population. More specifically, the two purposes of this study were (1) to differentiate these two specific forms of psychological climate, and (2) to test a causal model focusing on the relationship between these climates and their effects on relevant outcomes for at-risk employees in the healthcare industry. VPC was expected to be a partial mediator between MSC and four outcomes: work satisfaction, work-related exhaustion, workplace violence exposure, and the perception that workplace violence is a problem for the individual. Two samples were used to estimate these relationships in two scenarios: Sample 1 included workers from a multitude of U.S. healthcare organizations, and Sample 2 included workers within a single hospital system that were in units at increased risk for workplace violence.

Importantly, this was the first study to test the relationship between MSC and VPC. The two constructs represent related yet distinct forms of psychological climate. MSC focuses on occupational safety in a broader context, and typically centers on more traditional safety concerns, such as musculoskeletal injuries and slips, trips, or falls (BLS, 2015a). VPC has a narrower focus on the elimination of workplace violence. While both are concerned about worker safety and well-being, a supervisor may choose to engage in behaviors or enact policies that support one or both. In other words, it may be possible for a unit supervisor to invoke employee perceptions of MSC through their actions and values surrounding certain safety behaviors, while not promoting the control or elimination of workplace violence on their unit. Supporting Hypotheses 1 and 2, measures of MSC and VPC were found to be psychometrically distinct yet positively related in both samples.

One- and two-factor CFA models were estimated in order to test Hypothesis 1 that MSC and VPC were psychometrically distinct. In Sample 1, poor global fit was found for both models. The one-factor model was expected to have poor global fit, as two measures were allowed to load on a single factor. However, the poor fit of the two-factor model was of concern, as it should have fit more appropriately for two scales. Sample 1 had many more items for MSC (n = 16 items) and VPC (n = 12 items), which can drag down global fit when using items as indicators (Kline, 2015). Further, it was noted that some of the VPC items had low to moderate correlations with other items among the subscales. This can also drag down global fit of the model, as these items are trying to load on the same factor despite having low to moderate covariance with each other. The modification indices of this model indicated that some of the VPC items also had significantly related residuals with some of the MSC items, which can disturb not only the fit of VPC but also MSC, dragging down global fit (Kline, 2015). Thus, a second two-factor model was estimated in which VPC was fitted to a higher order structure, parceling the subscales together in order to reduce some of these effects. This model resulted in improved global fit and factor loadings for VPC.

Despite the better fit using the higher order structure, there was still a somewhat low loading for one of the VPC parcels in Sample 1. The third subscale, pressure against violence prevention, made up the third parcel and had a standardized factor loading of 0.42 in the retained model. This may be attributed to the negative wording and reverse scoring for this subscale. Reverse scoring can lead to issues with careless response and method variance, decreasing the internal consistency of the scale and contributing to poor fit within factor structures (Woods, 2006). The subject matter of this subscale was also somewhat divergent from the other two subscales, violence practices/response and violence policies/procedures. Pressure against violence

prevention dealt with the resistance of management to implement prevention measures due to competing organizational demands. This difference in subject matter could be another contributor to the low factor loading. Similarly, in Sample 2, one of the MSC items had a low standardized factor loading of 0.12. This item was also reverse coded and asked respondents to rate whether their supervisor made efforts to support safety only after an event has occurred. As with VPC in Sample 1, perhaps this item of MSC in Sample 2 was too distinct from the other items and faced the same issue with reverse scoring.

There were a few demographic differences between the samples. Sample 1 had a significantly lower mean age than Sample 2, which was expected based on the source of the respondents. Sample 1 was comprised of healthcare workers who were also undergraduate students and/or online workers of Amazon Mechanical Turk, and these respondents were younger than the employees of a single, large hospital system. Tenure in the healthcare field and organization had significantly higher means in Sample 2 as well, which may point to the fact that Sample 2 was drawn from employees of a single organization. This also makes intuitive sense based on the age difference between the samples. Despite the lower age and tenure in Sample 1, there was a significantly higher proportion of employees holding supervisory positions in Sample 1 than Sample 2. One explanation could be that the respondents of Sample 1 held more professional positions that would more likely include a supervisory role. For example, there were more administrative/management positions in Sample 1 (n = 21, 9.4%) than Sample 2 (n = 16, 3.6%).

There were also descriptive and mean differences of scales between the samples. Interestingly, measures of MSC and VPC had somewhat higher means in Sample 1 than Sample 2. This was an unexpected finding, as Sample 2 respondents were employed by a hospital system that has enacted zero-tolerance policies and procedures against workplace violence. However,

Sample 1 had a significantly higher proportion of supervisor respondents (42.4%) compared to Sample 2 (9.2%). Supervisors are responsible for occupational safety on their unit and cultivating safety climate for their employees. As such, they may provide higher ratings of their unit's MSC and VPC. This could be due to their role as the responsible party for these climates, or due to a misalignment between their espoused and enacted values, leading to a misperception between what they think about safety and what they actually enforce (Huang et al., 2014; Zohar & Luria, 2010). Of note, the scales used for MSC and VPC between samples were not highly correlated, and therefore it may not be appropriate to directly compare their means.

The only outcome that was significantly different between samples was workplace violence exposure. This was expected, however, as Sample 2 was comprised of employees in work units that had been specifically identified as being at increased risk for workplace violence. Further, Sample 1 was not constrained to hospitals, but allowed for responses from a multitude of healthcare occupations (e.g., dentistry, insurance). It is known that hospital workers in the U.S. are at increased risk for workplace violence exposure and injuries compared to other healthcare professions (BLS, 2015c; Janocha & Smith, 2010).

Final Models

In general, hypotheses were mostly supported, with some mixed results between samples. In Sample 1, the final model excluded direct paths from MSC to workplace violence exposure, the problem of workplace violence, and work-related exhaustion. In Sample 2, the final model excluded the direct path from MSC to workplace violence exposure. Below, the results of hypothesis testing are discussed, including the different relationships found between the samples. The following sections are grouped by outcome, discussing the significance of the relationships with MSC and VPC as well as the mediation, in each sample.

Work satisfaction. Work satisfaction is an attitude or affective orientation an employee has for their job (Weiss, Nicholas & Daus, 1999). There is an incomplete understanding of how work satisfaction is linked to behaviors and outcomes for healthcare workers (Lu, While, & Barriball, 2005). The current study aimed to contribute to the literature by studying relationships of work satisfaction with MSC and VPC in a healthcare population.

Previous research has found a positive relationship between MSC and work satisfaction, including one study (Hayes et al., 1998) which found that management safety practices was among one of the best predictors of job satisfaction. The results of the current study provide further evidence of the positive relationship between MSC and work satisfaction. VPC has been positively linked to work satisfaction in previous research (Aytac & Dursun, 2012; Kessler et al., 2008), and the same positive relationship was found in both samples, also supporting previous findings.

Previous research has called for further testing of mediators between aspects of the work environment and work satisfaction (Zangaro & Soeken, 2007). In the current study, VPC was tested as a partial mediator for the effects of MSC on work satisfaction. In Sample 1, there was no significant indirect effect (ab = -.25, p = .26), despite the significant direct effects from MSC to VPC, MSC to work satisfaction, and VPC to work satisfaction. An explanation could be the issue of multicollinearity between MSC and VPC. This issue arose when testing the alternate models, and the inclusion of negative affectivity in the reversed order model may have introduced a suppression effect. All direct paths between MSC, VPC, and work satisfaction were significant, and perhaps there was not enough unexplained variance left over to detect an indirect effect through the mediator VPC. Sample 2 did find a significant indirect effect of MSC on work satisfaction through VPC as the mediator.

One explanation for this difference in results could be the nature of the samples. Sample 2 represented employees from a single organization known to have salient policies and procedures for the prevention of workplace violence, and who worked on units identified to be at increased risk for workplace violence. Because of this, workplace violence may represent a more salient occupational hazard and therefore VPC may be more strongly linked to outcomes such as work satisfaction, allowing for a significant indirect effect. A second explanation could be the differences in sample size. While Sample 1 was comprised of 224 employees, Sample 2 had a higher sample size of 446, allowing for greater power to detect both direct and indirect effects between variables. A third explanation for the difference in findings between samples is the use of a control variable in Sample 1. Negative affectivity is a known covariate of many employee outcomes, including work satisfaction (Connolly & Viswesvaran, 2000; Levin & Stokes, 1989; Necowitz & Roznowski, 1994). However, including negative affectivity in the model allowed for more accurate measurements between the substantive variables by partitioning the variance accounted for by this covariate.

Work-related exhaustion. Work-related exhaustion represents emotional and physical manifestations of fatigue related to one's work (Anderzen & Arnetz, 2005; Arnetz, 1998). Both MSC and VPC were expected to negatively relate to work-related exhaustion. In Sample 1, the direct path between MSC and work-related exhaustion was excluded from the final model for better global fit. However, there was a significant, negative zero-order correlation between the variables. This points to the need for further examination of their potential causal relationship. While a previous, cross-lagged study found Psychological Safety Climate to be a primary predictor of work-related strain (Dollard et al., 2012), a mediator was not included in the analyses, and work-related strain was measured more specifically as emotional exhaustion and psychological strain.

When VPC is entered into the model as a mediator, the relationship between MSC and work-related exhaustion becomes non-significant, suggesting that VPC may be a more proximal predictor and relevant covariate of both variables. This is supported by the significant direct paths of MSC on VPC, and VPC on work-related exhaustion in Sample 1. In Sample 2, the hypothesis was supported and a significant, negative relationship was found in the final model. In both samples, VPC and work-related exhaustion were significantly, negatively related.

As for the mediation, Sample 1 did not include the direct path between MSC and work-related exhaustion, therefore partial mediation was unable to be tested. However, there was evidence for full mediation, as there was a significant indirect effect of MSC on work-related exhaustion via the mediator VPC. In Sample 2, there was a significant indirect effect of MSC on work-related exhaustion via the mediator VPC, supporting the hypothesis of partial mediation.

It was noted that the R-square value for work-related exhaustion was relatively low in Sample 2, $R^2 = .16$, $p < .001$, indicating that the model only explained about 16% of variance in work-related exhaustion. R-square, or the coefficient of determination, provides information on the goodness of fit for a regression equation, and is defined as the explained variance divided by the total variance for a dependent variable. In other words, it describes how well the model explains the variance of an outcome. Values range from 0 to 100, with higher values indicating generally closer fit. A low value may indicate a non-linear relationship, or missing covariates within the model. Since Sample 2 did not include any control variables, it is possible that there is variance unaccounted for that was not captured in this model, therefore not predicting the change in work-related exhaustion as well. R-square does not provide a complete picture of how well an outcome is predicted within a model (Barrett, 1974), however it provides a starting point to examine potential missing covariates and non-linear relationships.

Workplace violence exposure. Workplace violence exposure refers to being targeted as a victim of a violent event, whether physical or non-physical. MSC was expected to be negatively related to workplace violence exposure through more general safety precautions, however this was not supported in either sample. In both final models, best fit was achieved by excluding the direct path between MSC and workplace violence exposure.

Perhaps the more general measure of MSC was too broad to account for much variance in actual exposure to workplace violence. Items were worded to capture the more general promotion of and attention to occupational safety. However, there were significant, negative zero-order correlations between MSC and workplace violence exposure in both samples. VPC may account for a larger portion of variance in workplace violence exposure than MSC, and the measurement of MSC may be too broad to directly link to this outcome. This relationship has not been tested before, and should be re-examined in a cross-lagged design that allows for the analysis of directionality between the variables and their effects over time. Perhaps workplace violence exposure would precede MSC, such that actions are taken by supervisors only after events have occurred.

Workplace violence exposure has been negatively linked to VPC in previous research (e.g., Kessler et al., 2008; Spector et al., 2007; Yang et al., 2012). The same relationship was found in the current study, with significantly negative direct paths from VPC to workplace violence exposure in each model. The presence of VPC in the model may have also contributed to the null results of the path from MSC to workplace violence exposure. As discussed, more variance could be accounted for by VPC than MSC in the context of workplace violent events.

The partial mediation hypothesis for workplace violence exposure was not supported in Sample 1, as there was no significant direct or indirect relationship between MSC and this

outcome. This result may also point to the greater portion of variance for workplace violence exposure accounted for by VPC than MSC. This could also be due to the moderately low number of respondents claiming to be exposed to workplace violence in this sample (n = 91, 40.63%). An independent samples t-test revealed that Sample 2 had significantly more workplace violence exposure among its respondents. This difference could be due to the nature of the workplaces and occupations, as some employees held clerical positions and had limited patient contact, if any. In Sample 2, the partial mediation hypothesis could not be tested, as the direct path from MSC to workplace violence exposure was excluded from the final model. However, there was a significant, negative indirect effect of MSC on workplace violence exposure via the mediator VPC, providing evidence for full mediation.

It was noted that the R-square for workplace violence exposure was relatively low for Sample 1, R^2 = .14, p <.01, and Sample 2, R^2 = .11, p < .001. In other words, the model seems to only explain about 14% and 11% of variance in this outcome in each sample. With multiple forms and perpetrators of workplace violence, it is difficult to study the antecedents of violence exposure. The current study focused on different forms of psychological safety climate as antecedents. It would be inappropriate to assume that climate alone would predict a good portion of variance in workplace violence exposure. Further, this outcome was measured using a single item in both samples, as is common practice in workplace violence studies (Spector et al., 2015). Single item measures provide less information about the variance of a dependent variable compared to using a full scale. Also, the error variance must be fixed to zero when estimating a single item it order to achieve identification in structural equation modeling. Future studies may benefit from the use of a scale to measure exposure to workplace violence, however there are drawbacks noted in the literature about attempting to capture violence using pre-determined items. Certain experiences

may be overlooked and go unreported. Qualitative analysis of documented incidents of workplace violence would be of great value when estimating the prevalence and forms of workplace violence exposure.

The problem of workplace violence. This variable represents the perception that workplace violence exposure is a hazard that affects the individual personally (Arnetz, Arnetz, & Petterson, 1996). The problem of workplace violence relates closely to fear of future violence, or the perception that there is a danger of workplace violence exposure (Hershcovis & Barling, 2010; Mueller & Tschan, 2011; Spector et al., 2007). MSC was expected to relate negatively to this outcome. This was not supported in the final model for Sample 1, as there was no direct path included in this model. However, there was a significant, negative zero-order correlation between these variables in that sample. This could be due to a larger amount of variance for this outcome being accounted for by VPC, thereby leaving the relationship between MSC and exposure to become non-significant when estimated together in the same model. This could also be due simply to common method variance, measuring the variables at the same time on the same instrument. In Sample 2, this hypothesis was supported, as there was a significant, negative path from MSC to this outcome.

Fear of future violence, similar to this outcome, has been previously linked (negatively) to VPC (Spector et al., 2007). It was therefore expected that VPC and the problem of workplace violence would also be negatively related. In both samples, this hypothesis was supported with a significant, negative path from VPC to this outcome.

In Sample 1, the mediation hypothesis was partially supported for this outcome. There was no direct path between MSC and the problem of workplace violence, and so the partial mediation could not be tested. However, a significant indirect effect was found on MSC to the problem of

workplace violence via the mediator VPC, providing evidence for full mediation. Sample 2 supported the partial mediation hypothesis, as there was a significant indirect effect of MSC on this outcome via VPC, as well as a significant direct effect from MSC to the outcome. Again, the difference between the results of the two samples may be due to the different nature of the workplaces. The hospital system in Sample 2 has clear, enacted policies and procedures for the prevention workplace violence. Therefore, routine actions by unit supervisors may promote the prevention of workplace violence as part of a broader safety climate. MSC would therefore be more closely linked to the problem of workplace violence, as the employee would consider the routine actions of their unit supervisor to be in the interest of eliminating workplace violence.

As with workplace violence exposure, the problem of workplace violence also had a relatively low R-square in Sample 1, $R^2 = .14$, $p < .01$, or about 14% of variance in this outcome explained by the model. This variable was also measured using a single item, which may have contributed to the low coefficient. Future studies may benefit from developing a scale for the perception that workplace violence is a problem, in order to capture more variance in this outcome.

Negative Affectivity. The inclusion of negative affectivity as a control variable in Sample 1 added to the robustness of findings in this model. Negative affectivity was a significant covariate of several variables in the model. Even while controlling for its effects, the study hypotheses were widely supported. With its removal from the model, there was a decrease in R-square values of the dependent variables, indicating that negative affectivity explained a portion of their variance.

Alternate Models

Alternate models were tested in which the two exogenous variables, MSC and VPC, were reversed in the model: VPC became the antecedent and MSC became the mediator. One reason for estimating a reversed order model was the cross-sectional nature of the data. All variables were

measured at a single time point, with no way to test the change in variables over time. The hypothesized order of MSC and VPC was chosen based on theory alone, as this relationship has not been previously tested. MSC was chosen as the antecedent due to its broader context, focusing on workplace safety more generally. VPC was chosen as the mediator due to its narrower focus on the reduction of workplace violence, and its proximity to employee outcomes in healthcare settings. However, there is no precedent in research to support the directionality of this relationship, and so reversed order models were tested in order to assess which variable order had better fit.

The reversed order model of Sample 1 resulted in a better AIC fit index. However, negative affectivity was identified as a potential suppressor for the relationship between MSC and VPC. When the variable order was reversed, VPC became the independent variable that the control variable was set to correlate with. VPC and negative affectivity did have a stronger zero-order correlation (r = -0.45, p < .01) than did MSC and negative affectivity (r = -0.31, p < .01). The correlation between VPC and negative affectivity in the model was moderate and in the expected direction (r = -0.48, p < .001), however the flip in direction and significance from negative affectivity to MSC (β = .05, p = .49) was of concern. More telling perhaps, the relationship between VPC and work satisfaction became non-significant in the reversed model (β = .21, p = .06). This relationship has been supported in previous research (Aytac & Dursun, 2012; Kessler et al., 2008), and by the Sample 2 final model.

Further, this variable order was not supported by theory. MSC was expected to precede VPC due to the nature of these constructs and their purpose in the workplace. MSC represents the perceived commitment of unit supervisors to worker safety and their response to adverse events (Morrow et al., 2010), and is one facet of overall Safety Climate. VPC was developed as an

extension of Safety Climate, not as an underlying facet such as MSC. MSC should therefore serve as an antecedent to VPC, as VPC represents a contextualization of MSC to the occupational hazards of both physical and non-physical workplace violence. When the control variable was removed from the models, the original order was supported.

Limitations

A few limitations of the current study should be discussed. First, both samples were collected using cross-sectional surveys. Cross-sectional data has its own limitations in terms of testing the directionality of variable relationships. As there is no measured change over time between the variables, only theory and previous research evidence can support the hypothesized order of the variables. Due to measuring all variables at the same time on a single instrument, common method variance (CMV) could have influenced some of the results, producing some spurious relationships (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). These spurious associations arise when an extraneous source contributes to their covariance, such as using a single instrument to measure all variables. Sources of CMV can include a consistency motif (Podsakoff et al., 2003), in which respondents try to remain consistent in their ratings across a single measure, even if they are not reflecting their true values (e.g., rating highly on MSC and VPC at a single time point). Future studies should consider longitudinal, cross-lagged designs to investigate the directionality of the variable relationships, allowing for greater inference of the causality and potentially reducing the effects of CMV (Kline, 2015; Podsakoff et al., 2003).

Second, the surveys were self-report measures, which may lead to response biases. Recall bias involves error when recollecting over a long span of time (Hassan, 2006). Asking participants to recall over a 12-month period whether they had been a target of workplace violence, or whether their supervisor had performed certain behaviors, may have allowed for error in responses. Social

desirability is a type of response bias in which respondents attempt to appear favorable through their responses (e.g., Ones, Viswesvaran, & Reiss, 1996). In Sample 1, respondents may have intentionally rated themselves "low" on negative affectivity or as being targeted for workplace violence. In Sample 2, respondents may have been uneasy to rate their direct supervisor as "low" on certain favorable behaviors, especially during a major upper management transition during the survey. Another source of CMV, using common scale formats may contribute to spurious relationships between variables when there is a single rater (Podsakoff et al., 2003). The current study used Likert-type scales for all measures. Ambiguity in item wording is another known source of CMV, which may explain why the third item of MSC in Sample 2 had such poor fit in terms of its correlation with other items and its standardized factor loading. Future studies should consider using a multi-trait multi-method approach with minimal ambiguity in item wording in effort to reduce effects from CMV (Podsakoff et al., 2003).

Third, although two samples were used to cross-validate the hypothesized model, they used a few different scales in their measurement. In future research, it would be ideal to use identical scales for measuring the constructs. In order to assess the similarity of those different scales in the present study, correlations were examined between the shorter and longer scales in Sample 1. While the VPC scales had a strong correlation (r = .83, p < .01), the MSC scales had a somewhat moderate correlation (r = .68, p < .01). However, this was due to the third item of the short scale MSC, as it had a very low correlation to the other items, and dragged down the scale reliability. When that item was dropped, the correlation between the MSC scales increased to r = .84, p < .01. In sum, it would be best to use the same scales across samples.

Fourth, the survey for Sample 1 did not collect information about the varied types of healthcare organizations for those respondents, only their job titles. It was important to test the

generalizability of the model within a sample that was not constrained to a single organization. While Sample 1 did have some different results than Sample 2, there was no data on whether this sample also represented hospitals, or different healthcare facilities. Perhaps some of the differences in results would have reflected the type of work performed within Sample 1; for example, respondents could have worked mainly in private practices, state-run institutions, or even insurance. The difference in setting is of importance, as U.S. hospital workers are at increased risk for violence-related injuries compared to workers of other U.S. healthcare facilities (BLS, 2015a).

Implications and Future Directions

Research. The results of this study present some implications and future directions for research. A preliminary examination of the relationship between MSC and VPC was conducted in two samples using different measures. The results of each sample validated the other, as each found the different measures of these constructs to be psychometrically distinct yet positively related. Future research on MSC and VPC should consider alternate research designs. Longitudinal and cross-lagged designs would allow for the examination of the change in their relationship over time, providing evidence for the directionality of their relationship. Full, validated scales should be used for the variables in all samples in order to more directly compare models. Alternative measures may also be used, for example, the Kessler et al. (2008) scale to measure VPC, in order to explore potential measurement effects contributed by the different measures. Use of more objective data, such as documented workplace violence reports, would add to the validity of the results.

A mediation relationship was also first tested in this study, with VPC serving as the full or partial mediator of MSC on most outcomes. Future research should explore other potential mediators or moderators in this area. Specifically, since VPC had more proximal relationships with

most outcomes, are there any substantive mediators or moderators on the effects of VPC on the outcomes? Perhaps there are moderators on the relationship between MSC and VPC as well, such as previous workplace violence exposure. For example, would work units with increased incidence rates of workplace violence have a stronger relationship between MSC and VPC, compared with units that have little to no incidents of workplace violence? Further, other relationships between MSC and VPC should be examined as well, such as measuring the relationships between VPC and outcomes while controlling for the effects MSC. Examination of this relationship may provide evidence of the effects of VPC on outcomes above and beyond effects already contributed by MSC.

The samples drawn for this study targeted the healthcare population, and more specifically hospital workers in Sample 2. This was based on the increased risk for workplace violence in healthcare samples. Further research should test this model in other worker populations that are at increased risk (e.g., law enforcement; BLS, 2015a) and also working populations that are not necessarily at increased risk. There may be differences in the relationships between variables for various workforces, based on the need for workplace violence prevention or interactions with direct supervisors, for instance.

Practice. The results of this study also provide certain practical recommendations for upper management and direct supervisors. In effort to reduce exposure to workplace violence, it may be pertinent to develop a more specific safety climate aimed at the elimination of these events. Workplace violence encompasses not only physical but also non-physical aggression, such as verbal harassment (Jackson et al., 2002). VPC was developed in order to address the gap in safety climate research that tends to overlook non-physical violence, as these events often go unreported (Arnetz et al., 2015b) and are not yet regulated like more traditional occupational hazards. Multiple

forms of climate exist and are specific to different aspects of the workplace, such as safety or violence prevention (Reichers & Schneider, 1990; Zohar, 2003). In both samples, VPC was the only form of climate to relate directly (negatively) to workplace violence exposure. This makes intuitive sense, as a more specific form of climate would be more proximally related to relevant outcomes.

VPC was significantly related to all outcomes and served as a full or partial mediator for MSC on a majority of the outcomes across the samples. Employee outcomes of work satisfaction, work-related exhaustion, and the problem of workplace violence had significant paths from VPC in expected directions. Stakeholders of healthcare organizations should recognize the value of this more specific form of safety climate, not only for the benefit of workplace violence prevention, but from a holistic perspective. Upper management should set forth policies, practices, and procedures for the prevention and intervention of workplace violence within the organization. Training for unit supervisors on identifying and preventing workplace violence may be beneficial for their attempts to cultivate VPC on their units.

Conclusion

In conclusion, the present study represents an important first step in understanding the relationship between MSC and VPC in the context of two healthcare samples. The wide support for the study hypotheses suggests that MSC and VPC may serve as effective protective factors for healthcare employees who may be exposed to workplace violence. The differences in samples yielded slightly different model structures and path significance. Workplace violence exposure was significantly higher in the sample of hospital employees (Sample 2), which is a known at-risk population in the U.S. healthcare industry. MSC had more direct relationships to outcomes in Sample 2 as well, which may be due to the cohesiveness of policies and procedures within the

single organization, versus the multitude of organizations studied in Sample 1. This may also point to the effects of the system-wide enacted policies and procedures on the prevention of workplace violence of the hospital system in Sample 2. More research is needed in order to more fully understand the directionality and changes in these relationships over time. However, several implications for research and practice were substantiated by the results of this study and evidence was found for the potential value of VPC above and beyond MSC for healthcare employees.

Table 1

Sample 1 Participant Demographics

		Frequency (*n*)	Percentage (%)
Gender			
	Male	42	18.8
	Female	149	66.5
Race			
	White/European American	151	67.4
	Black/African American	26	11.6
	Arab/Middle Eastern	11	4.9
	Asian/Pacific Islander	22	9.8
	Hispanic/Latino(a)	10	4.5
	Native American	2	0.9
Tenure in healthcare			
	0-5 years	106	47.3
	5-10 years	63	28.1
	10-15 years	30	13.4
	>15 years	25	11.2
Tenure in organization			
	0-5 years	155	69.2
	5-10 years	45	20.1
	10-15 years	13	5.8
	>15 years	11	4.9
Supervisor			
	Yes	95	42.4
	No	129	57.6
Prevalent Job Types[1]			
	Registered Nurse	42	18.75
	Certified Nursing Assistant	31	13.84
	Medical Assistant	25	11.16
	Administration/Management	21	9.38
	Clerical/Secretary	20	8.93
		Mean	Standard Deviation
Age		32.17	10.54

Note. Sample $N = 224$.

[1]Only the five most prevalent ($n \geq 20$) job types were reported due to the number ($n = 25$) of job types

Table 2

Sample 2 Participant Demographics

		Frequency (*n*)	Percentage (%)
Gender			
	Male	79	17.8
	Female	365	82.2
Race			
	White/European American	263	60.2
	Black/African American	133	30.4
	Asian/Pacific Islander	26	5.9
	Two or more races	6	1.3
	Hispanic/Latino(a)	9	2.0
Tenure in healthcare			
	0-5 years	143	32.1
	5-10 years	65	14.6
	10-15 years	55	12.4
	>15 years	182	40.9
Tenure in organization			
	0-5 years	186	41.7
	5-10 years	83	18.6
	10-15 years	59	13.2
	>15 years	118	26.5
Supervisor			
	Yes	41	9.2
	No	403	90.8
Prevalent Job Types[1]			
	Registered Nurse	268	60.36
	Security	41	9.23
	Patient Care Associate	34	7.66
	Unit Clerk	20	4.50
	Administration/Management	16	3.60
		Mean	Standard Deviation
Age		42.99	13.55

Note. Sample $N = 446$.

[1]Only the five most prevalent ($n \geq 16$) job types were reported due to the number ($n = 25$) of job types

Table 3

Sample 1 Study and Control Scale Descriptives

	Mean	SD	Scale
Management Safety Climate	3.76	0.88	1 – 5
Violence Prevention Climate	3.85	0.78	1 – 5
Workplace violence exposure	0.51	0.67	0 – 2
Workplace violence problem	1.62	0.87	1 – 4
Work satisfaction	3.98	1.02	1 – 5
Work-related exhaustion	60.16	26.90	0 – 100
Negative affectivity	2.05	0.78	1 – 5

Note. Sample $N = 224$.

Table 4

Sample 2 Study Scale Descriptives

	Mean	SD	Scale
Management Safety Climate	3.07	0.91	1 – 5
Violence Prevention Climate	3.55	0.96	1 – 5
Workplace violence exposure	0.92	0.81	0 – 2
Workplace violence problem	1.83	0.92	1 – 4
Work satisfaction	3.76	0.89	1 – 5
Work-related exhaustion	61.63	28.68	0 – 100

Note. Sample $N = 446$.

Table 5

Sample 1 Variable Zero-Order Correlations

	Scale Names	1	2	3	4	5	6	7
1	Management Safety Climate	(.95)						
2	Violence Prevention Climate	.60**	(.88)					
3	Workplace violence exposure	-.24**	-.24**	(--)				
4	Workplace violence problem	-.27**	-.31**	.43**	(--)			
5	Work satisfaction	.57**	.53**	-.23**	-.27**	(.91)		
6	Work-related exhaustion	-.37**	-.36**	.18**	.30**	-.51**	(.89)	
7	Negative affectivity	-.31**	-.45**	.34**	.32**	-.45**	.42**	(.91)

Note: Scale reliabilities are shown in parentheses on the diagonal.
** $p < .01$
Sample $N = 224$.

Table 6

Sample 2 Variable Zero-Order Correlations

	Scale Name	1	2	3	4	5	6
1	Management Safety Climate	(.63)					
2	Violence Prevention Climate	0.59**	(.90)				
3	Workplace violence exposure	-.21**	-.31**	(--)			
4	Workplace violence problem	-.44**	-.50**	.40**	(--)		
5	Work satisfaction	.41**	.45**	-.20**	-.42**	(.87)	
6	Work-related exhaustion	-.34**	-.37**	.17**	.32**	-.56**	(.90)

Note: Scale reliabilities are shown in parentheses on the diagonal.
** $p < .01$
Sample $N = 446$.

Table 7

Sample 1 Higher Order Confirmatory Factor Analysis

Scale	Item	Standardized Factor Loading
Management Safety Climate	MSC1	0.66
	MSC2	0.79
	MSC3	0.79
	MSC4	0.80
	MSC5	0.85
	MSC6	0.73
	MSC7	0.50
	MSC8	0.80
	MSC9	0.82
	MSC10	0.87
	MSC11	0.79
	MSC12	0.68
	MSC13	0.81
	MSC14	0.82
	MSC15	0.80
	MSC16	0.67
Violence Prevention Climate Subscale 1 (VPC_1) †		
	VPC1	0.80
	VPC2	0.75
	VPC3	0.85
	VPC4	0.80
Violence Prevention Climate Subscale 2 (VPC_2) †		
	VPC5	0.88
	VPC6	0.82
	VPC7	0.91
	VPC8	0.77
Violence Prevention Climate Subscale 3 (VPC_3) †		
	VPC9	0.79
	VPC10	0.85
	VPC11	0.81
	VPC12	0.78
Violence Prevention Climate‡		
	VPC_1	0.99
	VPC_2	0.72
	VPC_3	0.42
Work satisfaction		
	JS1	0.82

	JS2	0.89
	JS3	0.90
Work-related exhaustion		
	EX1	0.95
	EX2	0.80
	EX3	0.82

Note. Sample $N = 224$.
† Second-order latent factor
‡ Third-order latent factor

Table 8

Sample 2 Confirmatory Factor Analysis

Scale	Item	Standardized Factor Loading
Management Safety Climate	MSC1	0.92
	MSC2	0.93
	MSC3	0.12
Violence Prevention Climate		
	VPC1	0.80
	VPC2	0.86
	VPC3	0.83
	VPC4	0.84
Work satisfaction		
	JS1	0.75
	JS2	0.87
	JS3	0.86
Work-related exhaustion		
	EX1	0.92
	EX2	0.92
	EX3	0.81

Note. Sample $N = 446$.

Table 9

Sample 1 Standardized Direct and Indirect Path Estimates

Direct Paths

Path	Standardized Estimate	Standard Error	p-value
MSC → VPC	.69	.05	<.001
MSC → Work satisfaction	.31	.10	<.01
VPC → Work satisfaction	.32	.12	<.01
VPC → Exhaustion	-.35	.08	<.001
VPC → WPV exposure	-.17	.08	<.05
VPC → WPV problem	-.22	.08	<.01

Indirect Paths

Path	Standardized Estimate	Standard Error	p-value
MSC → Work satisfaction	.25	.22	.26
MSC → Exhaustion	-.33	.08	<.001
MSC → WPV exposure	-.09	.05	.07
MSC → WPV problem	-.16	.07	<.05

Note: All indirect paths are through VPC
"MSC" stands for management safety climate
"VPC" stands for violence prevention climate
"WPV" stands for workplace violence
Sample N = 224.

Table 10

Sample 2 Standardized Direct and Indirect Path Estimates

Direct Paths

Path	Standardized Estimate	Standard Error	p-value
MSC → VPC	.73	.03	<.001
MSC → Work satisfaction	.28	.07	<.001
MSC → Exhaustion	-.23	.08	<.01
MSC → WPV problem	-.21	.07	<.001
VPC → Work satisfaction	.29	.07	<.001
VPC → Exhaustion	-.21	.08	<.01
VPC → WPV exposure	-.33	.05	<.001
VPC → WPV problem	-.37	.07	<.01

Indirect Paths

Path	Standardized Estimate	Standard Error	p-value
MSC → Work satisfaction	.15	.05	<.05
MSC → Exhaustion	-.15	.06	<.05
MSC → WPV exposure	-.18	.03	<.001
MSC → WPV problem	-.23	.06	<.001

Note: All indirect paths are through VPC
"MSC" stands for management safety climate
"VPC" stands for violence prevention climate
"WPV" stands for workplace violence
Sample $N = 446$.

Table 11

Support for Hypotheses in Sample 1 and Sample 2

	Hypothesis	Sample 1	Sample 2	Overall
1	MSC ≠ VPC	Supported	Supported	Supported
2	MSC (+) VPC	Supported	Supported	Supported
3a	MSC (+) Work satisfaction	Supported	Supported	Supported
3b	VPC (+) Work satisfaction	Supported	Supported	Supported
4a	MSC (-) Work-related exhaustion	Not supported	Supported	Partially supported
4b	VPC (-) Work-related exhaustion	Supported	Supported	Supported
5a	MSC (-) WPV exposure	Not supported	Not supported	Not supported
5b	VPC (-) WPV exposure	Supported	Supported	Supported
6a	MSC (-) WPV problem	Not supported	Supported	Partially supported
6b	VPC (-) WPV problem	Supported	Supported	Supported
7a	VPC partial med. MSC → work satisfaction	Not supported	Supported	Partially supported
7b	VPC partial med. MSC → work-related exhaustion	Not supported	Supported	Partially supported
7c	VPC partial med. MSC → WPV exposure	Not supported	Not supported	Not supported
7d	VPC partial med. MSC → WPV problem	Not supported	Supported	Partially supported

Note. "MSC" stands for management safety climate
"VPC" stands for violence prevention climate
"WPV" stands for workplace violence

Figure 1. Hypothesized Structural Model

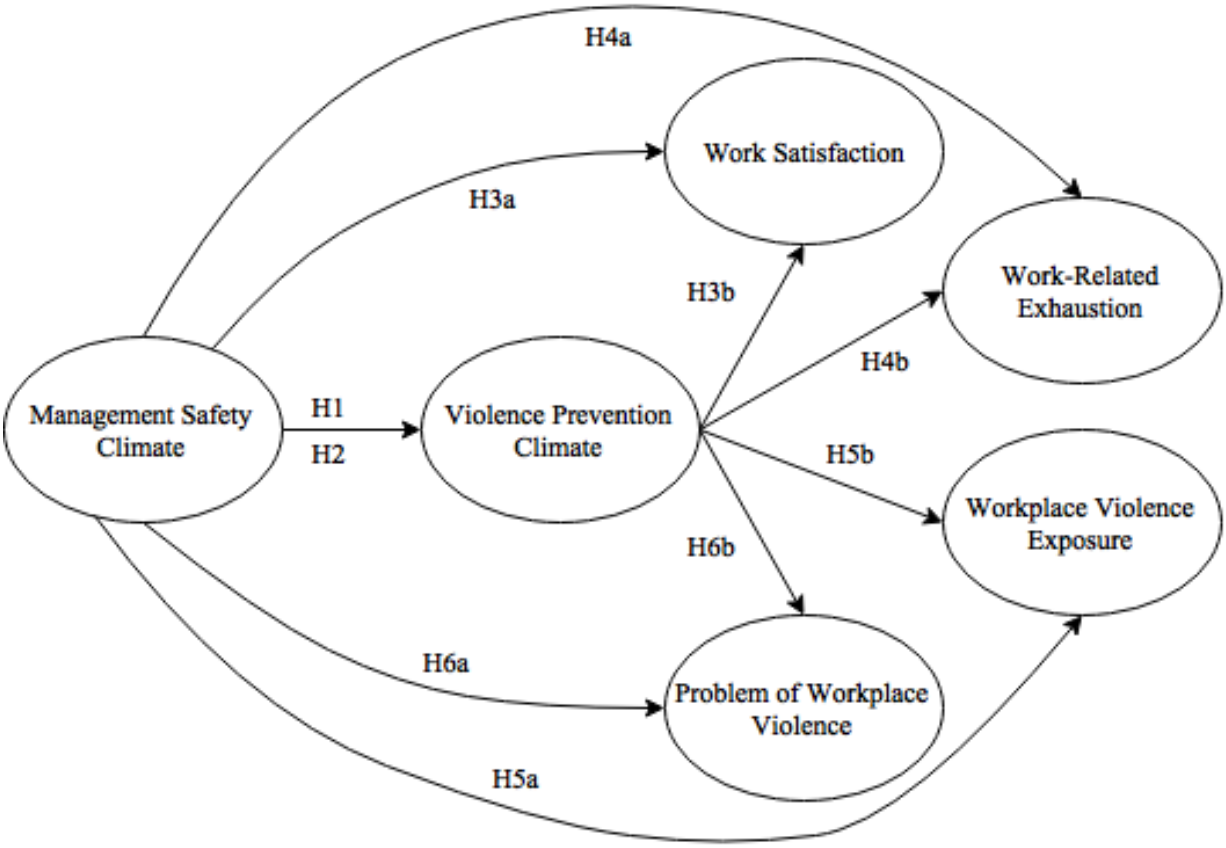
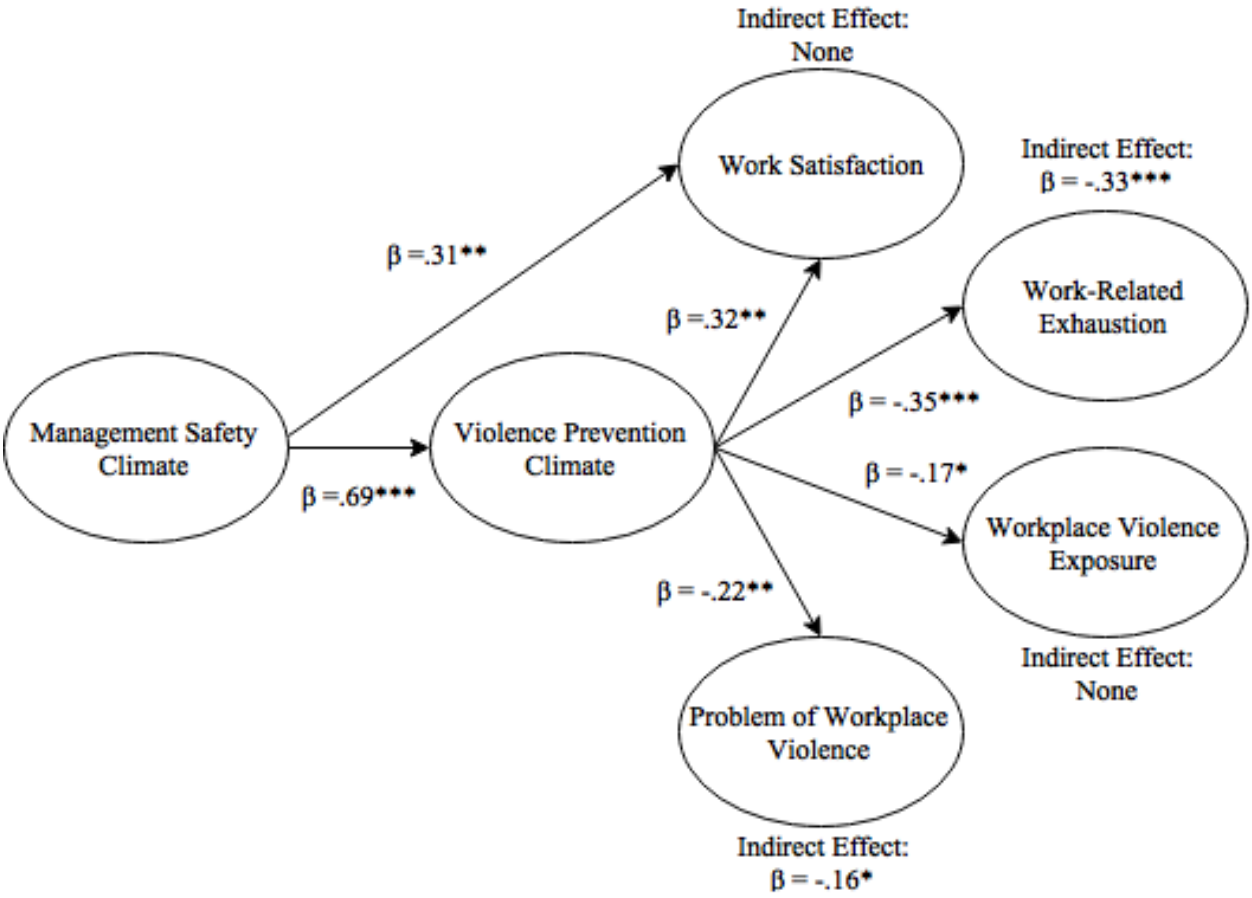
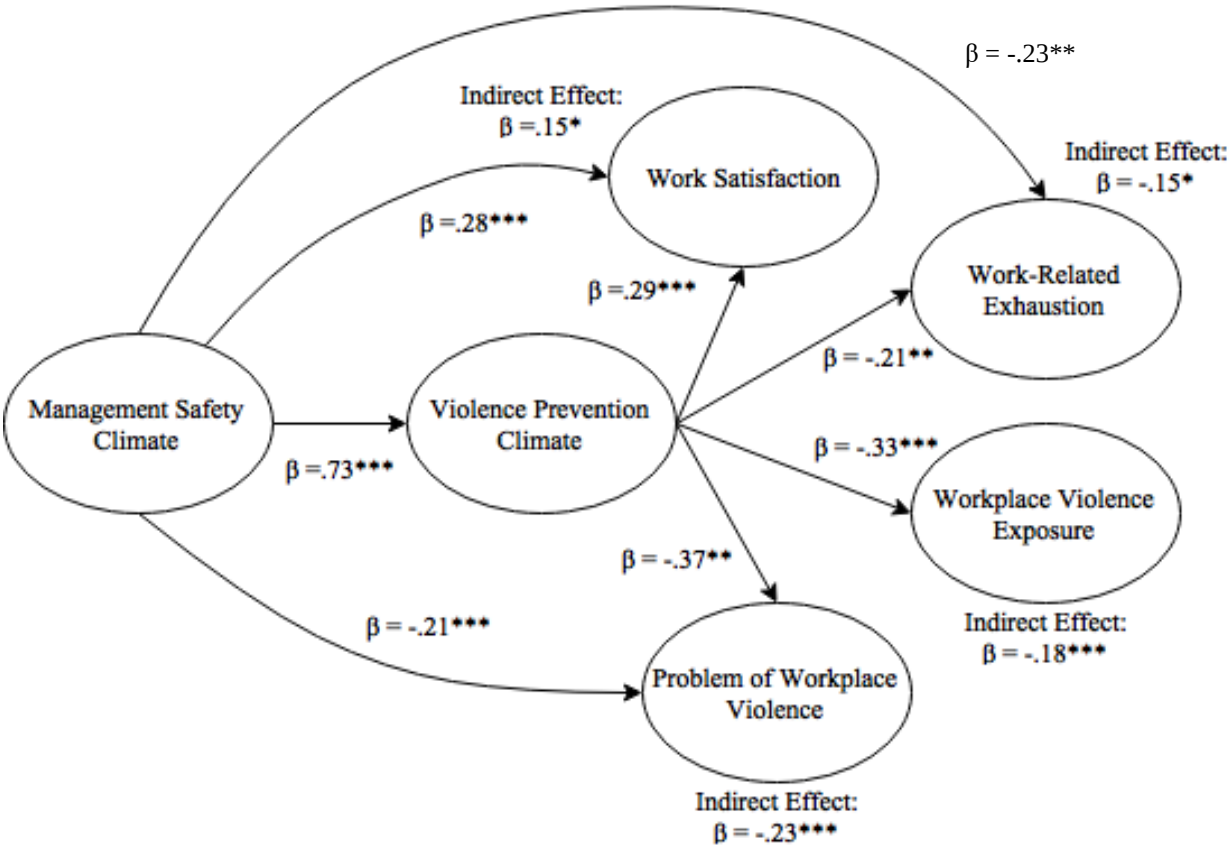


Figure 2. Sample 1 Final Model



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

Figure 3. Sample 2 Final Model



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

APPENDIX A

Management Safety Climate (Sample 1)

Instructions: How much do you agree or disagree with the following statements?

Response Options:

1	2	3	4	5
Strongly Disagree				Strongly Agree

Items:

My unit supervisor…

1. Makes sure we receive all the equipment needed to do the job safely.
2. Frequently checks to see if we are all obeying the safety rules.
3. Discusses how to improve safety with us.
4. Uses explanations (not just compliance) to get us to act safely.
5. Emphasizes safety procedures when we are working under pressure.
6. Frequently tells us about the hazards in our work.
7. Refuses to ignore safety rules when work falls behind schedule.
8. Is strict about working safely when we are tired or stressed.
9. Reminds workers who need reminders to work safely.
10. Makes sure we follow all the safety rules (not just the most important ones).
11. Insists that we obey safety rules when fixing equipment or machines.
12. Says a “good word” to workers who pay special attention to safety.
13. Is strict about safety at the end of the shift, when we want to go home.

14. Spends time helping us learn to see problems before they arise.

15. Frequently talks about safety issues throughout the work week.

16. Insists we wear our protective equipment even if it is uncomfortable.

APPENDIX B

Management Safety Climate (Sample 2)

Instructions: How much do you agree or disagree with the following statements?

Response Options:

1	2	3	4	5
Strongly Disagree				Strongly Agree

Items:

In my work area or unit…

1. Unit management provides a work climate that promotes workplace safety.
2. The actions of unit management show that workplace safety is a top priority.
3. Unit management seems interested in workplace safety only after an adverse event happens.[2]

[2]Item 3 had a low correlation with the other items and a low standardized factor loading

APPENDIX C

Violence Prevention Climate (Sample 1)

Instructions: How much do you agree or disagree with the following statements?

Response Options:

1	2	3	4	5
Strongly Disagree				Strongly Agree

Items:

1. Management in this organization quickly responds to episodes of violence.
2. Management encourages employees to report physical violence.
3. Management encourages employees to report verbal violence.
4. Reports of violence from other employees are taken seriously by management
5. My employer provides adequate assault/violence prevention training.
6. In my unit, violence prevention procedures are detailed.
7. In my unit, there is training on violence prevention policies and procedures.
8. In my unit, employees are informed about potential violence hazards
9. In my unit in order to get the work done, one must ignore some violence prevention policies.
10. In my unit, whenever pressure builds up, the preference is to do the job as fast as possible, even if that means compromising violence prevention.
11. In my unit, human resource shortage undermines violence prevention standards.
12. In my unit, violence prevention policies and procedures are ignored.

APPENDIX D

Violence Prevention Climate (Sample 2)

Instructions: How much do you agree or disagree with the following statements?

Response Options:

1	2	3	4	5
Strongly Disagree				Strongly Agree

Items:

In my hospital…

1. Management in this hospital quickly responds to episodes of violence.
2. Management encourages employees to report physical violence.
3. Management encourages employees to report verbal violence.
4. Reports of violence from other employees are taken seriously by management.

APPENDIX E

Work Satisfaction

Instructions: How much do you agree or disagree with the following statements?

Response Options:

1	2	3	4	5
Strongly Disagree				Strongly Agree

Items:

1. In general, I don't like my job.
2. All in all, I am satisfied with my job.
3. In general, I like working here.

APPENDIX F

Work-Related Exhaustion

Instructions: How much do you agree or disagree with the following statements?

Response Options:

1	2	3	4	5
Never				Daily

Items:

I feel…

1. Emotionally drained after work.
2. Worn out after work.
3. Tired when I think about work.

APPENDIX G

Negative Affectivity

Instructions: Please read the following list of thoughts and emotions and indicate how often you feel this way in general.

Response Options:

1	2	3	4	5
Never				Daily

Items:

1. Distressed
2. Upset
3. Guilty
4. Scared
5. Hostile
6. Irritable
7. Ashamed
8. Nervous
9. Jittery
10. Afraid

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ABSTRACT

MANAGEMENT SAFETY CLIMATE AND VIOLENCE PREVENTION CLIMATE: THE MEDIATING ROLE OF A MORE SPECIFIC CLIMATE FOR HEALTHCARE EMPLOYEE OUTCOMES

by

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Workplace violence is defined as aggressive acts against employees ranging from verbal abuse, threats, and bullying, to physical assault (OSHA, 2002; Jackson, Clare, & Mannix, 2002). The two purposes of this study were (1) to differentiate two specific forms of psychological climate related to workplace violence on a work unit: Violence Prevention Climate (VPC) and Management Safety Climate (MSC), and (2) to test a causal model focusing on the relationship between these climates and their effects on relevant outcomes for at-risk employees in the healthcare industry. MSC was expected to partially mediate the effects of VPC on four outcomes: work satisfaction, work-related exhaustion, workplace violence exposure, and the perception that workplace violence is a problem for the individual. Two samples were used to compare the differences between these relationships in two scenarios: within a single hospital system after identifying work units at increased risk for workplace violence, and within a multitude of U.S. healthcare organizations. Using structural equation modeling, results revealed slight variations in

the final model structure between the two samples. The majority of hypotheses were supported, and implications for practice and research are discussed.

AUTOBIOGRAPHICAL STATEMENT

Lydia E. Hamblin received her Master of Arts in Psychology from Wayne State University in 2014, and her Bachelor of Arts in Psychology from Purdue University in 2011. She is a doctoral candidate in Industrial/Organizational Psychology at Wayne State University, under the supervision of Dr. Alyssa McGonagle. Her major area of interest is Occupational Health Psychology, and her research focuses primarily on workplace violence and healthcare workers. She is currently employed as a Court Research Associate at the National Center for State Courts in Williamsburg, Virginia.