

Safety at Work: Individual and Organizational Factors in Workplace Accidents and
Mistreatment

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Abstract

The modern workplace contains many physical and interpersonal hazards to employee physical and psychological health/well-being. This chapter integrates the literatures on occupational safety (i.e., accidents and injuries) and mistreatment (physical violence and psychological abuse). A model is provided linking environmental (climate and leadership), individual differences (demographics and personality), motivation, behavior, and outcomes. It notes that some of the same variables have been linked to both safety and mistreatment, such as safety climate, mistreatment climate, conscientiousness, and emotional stability.

The modern workplace can be a dangerous place with many potential safety hazards adversely affecting both physical and psychological health (Levi, 2011). Physical hazards are aspects of the work environment that are potentially dangerous, either because of the manner in which the environment is designed, or because employees fail to follow safe practices. Both of these expose employees to unnecessary hazards, for example, by their failing to wear protective equipment. The nature of the job and job tasks can place individuals into high risk situations, such as farm workers who handle potentially toxic chemicals, or health professionals who are exposed to infectious diseases. Safety hazards can also arise through interactions among people on the job. Both physical violence and psychological abuse are forms of workplace mistreatment that are commonplace (Schat, Frone, & Kelloway, 2006). In this chapter we will focus on hazards that come from both the physical and interpersonal environment, and which can result in physical and/or psychological injury and illness. Together both kinds of hazards represent threats to physical and psychological safety at work.

Certainly, we have come a long way in terms of research examining workplace physical and psychological safety. However, up to this point, the literature concerning safety from physical injury and illness due to accidental exposure to physical hazards has for the most part been segregated from the literature on mistreatment. For example, the comprehensive *Handbook of Workplace Violence* (Kelloway, Barling, & Hurrell, 2006) does not have a chapter on accidents/safety, nor is it mentioned in the index. The lack of safety content reflects the rarity of sources that include both physical and interpersonal hazards in the same study. This is unfortunate as there are some findings suggesting that both physical and interpersonal risks can be related (e.g., Gazica & Spector, 2013).

The main purpose of this chapter is to integrate the literatures on potential safety antecedents from a variety of physical and interpersonal factors to illustrate communalities. Specifically, we review and integrate research that has investigated situational and personal antecedents related to both domains of research. The chapter begins with a discussion of the nature and prevalence of these workplace hazards and outcomes of exposures to hazards. We then will provide an integrative conceptual model linking environmental factors and individual differences to these important outcomes. Finally we provide an overview of the literature concerning both environmental conditions (climate and leadership) and individual differences (personality and demographics) that have been shown to relate to accidents and mistreatment.

Safety Hazards and Safety Outcomes

Employees can be exposed to a wide range of potentially harmful conditions or hazards at work that can lead to safety outcomes that adversely affect physical and psychological health. Although not every hazard exposure necessarily leads to injury or illness, reducing hazards can be an effective way of enhancing safety (Koh & Aw, 2003). Figure 1 lists four classes of exposures and three classes of health outcomes that can result. Accidents are unintended exposure of employees to potentially harmful physical conditions that can result in injury and illness. They include near misses as events that had the potential to cause harm but did not (Hayes, Perander, Smecko, & Trask, 1998), such as an automobile collision in which no one was hurt. Accidents that lead to unintended injury involve exposure to chemical, electrical, kinetic, mechanical or thermal energy (Liller, 2010). Zohar (2000) distinguished micro-accidents as another form of

injury of importance that consists of minor injuries that required medical attention but were not serious enough to result in lost workdays.

Insert Figure 1 about Here

Employees can be exposed to biological or chemical substances that have the potential to result in unintended illness. Such exposures can be accidental when active steps taken to avoid contact with highly infectious or toxic materials are compromised. Physical violence occurs when a person intentionally makes physical contact with another with the purpose of causing harm. This can range from relatively minor pushing and shoving to assault with a weapon. It can lead not only to physical injury, but to psychological strain as well (Spector, Coulter, Stockwell, & Matz, 2007). Verbal abuse consists of nonphysical hurtful interactions among individuals that can result in psychological distress and strain. Often verbal abuse can lead to physical violence, for example, when a heated argument results in a physical altercation.

The literature on mistreatment has used a variety of terms to refer to overlapping, but distinct forms of these behaviors. It has also distinguished mistreatment from the perspective of the actor who performs the behavior versus the person who is the target of the behavior. The actor literature has used the terms aggression (Neuman & Baron, 1998), counterproductive work behavior directed toward people (Spector & Fox, 2005), and interpersonal deviance (Bennett & Robinson, 2000) among others. Researchers on the target side distinguish abusive supervision (Tepper, 2000), incivility (Pearson,

Andersson, & Porath, 2005), and workplace bullying (Rayner & Keashly, 2005), as well as other forms of negative interpersonal interactions.

In the remainder of this chapter we focus on acute exposures that can potentially lead to intentional (mistreatment) and unintentional (accidents) injury and illness, both physical and psychological. These exposures can result in harm to employees from a single event, although there can be cumulative effects, such as when a pattern of workplace bullying leads to increasingly severe responses ending in a post-traumatic stress disorder (Rayner & Keashly, 2005). We focus on physical and interpersonal workplace hazards that fit an integrated conceptual model of safety.

Incidence of Accidents/Injuries and Mistreatment

Unfortunately, injuries and illnesses are far too common an occurrence in the workplace. In the U.S. alone there were more than 3 million workplace injuries and illness in the private sector in 2013. This equates to an incidence rate of 3.3 cases per 100 full-time equivalent employees, with rates being even higher for the public sector (Bureau of Labor Statistics, 2014b). That same year private industry experienced more than 1.1 million cases of an employee being out of work one or more days for a work-related illness or injury (Bureau of Labor Statistics, 2013). In 2013 there were more than 4,400 fatalities due to workplace injury, which is a rate of 3.2 per 100,000 full-time equivalent workers (Bureau of Labor Statistics, 2014a). Rates varied considerably by industry sector, with the highest rates for agriculture, fishing, forestry, and hunting (Bureau of Labor Statistics, 2014a). Worldwide, it has been estimated that there are annually more than 270 million cases of workplace injuries/illnesses and more than 350,000 fatalities.

Aside from the personal and social costs associated with workplace injuries, there is considerable financial cost as well. It has been estimated that workplace injuries cost employers more than one billion dollars per week for worker compensation costs (medical treatment plus compensated salary benefits) in the U.S. alone (Liberty Mutual Research Institute for Safety, 2014). Total costs that include lost productivity are estimated to be more than 250 billion dollars per year in the U.S. (Leigh, 2011).

The rates of exposure to mistreatment are even higher than those for accidental injury due to physical hazards. For instance, results of the National Survey of Workplace Health and Safety suggest that over 41% of employees in the United States are victims of psychological abuse, whereas 6% of individuals experience some type of physical violence in the workplace annually (Schat et al., 2006). Further, in the year 2013, out of 4,405 fatal occupational injuries, 397 (9%) were the result of workplace violence (Bureau of Labor Statistics, 2013b). Clearly both interpersonal and physical hazards are frequent occurrences in the modern workplace, and they have significant costs for employees and organizations alike. The control of these hazards begins with an understanding of the factors that contribute to employee exposure.

A Basic Framework

To organize this chapter, we provide a basic framework linking potential environmental and personal antecedents to safety outcomes and proposed intervening variables. We subsume exposure to both physical and interpersonal hazards under a broad concept of safety that encompasses both physical health (injury and illness) and psychological health including emotional strain and positive well-being. This framework builds on the Neal and Griffin (2004) safety model that is concerned specifically with

unintended injuries from accidents through the integration of research on psychological climate and leadership. Specifically, their behavioral model of safety outlines both distal (work environment and individual differences) and proximal antecedents of safety behavior that leads to safety outcomes. The proximal factors, which the authors describe as those that are “directly responsible for individual differences in safety behavior” (p. 16), are comprised of the knowledge and skills that one must have in order to engage in proper safety behavior, and of the motivation to perform such safety behaviors. The model distinguishes two classes of safety behavior that correspond to the distinction that is often made in the job performance domain between task behavior, which are required tasks that might be listed in a job description, and contextual performance which are behaviors that support the core function of the organization (Borman & Motowidlo, 1997). Safety compliance concerns an employee following established protocols for safe performance, including the performance of tasks in a safe manner and the wearing of required safety equipment. Safety participation is the active support of safety that goes beyond requirements, and might include giving safety advice and assistance to coworkers, making suggestions, and taking a proactive role in ensuring that the workplace remains as safe as possible.

The distal factors, which affect safety behaviors indirectly through their effects on the proximal factors, include work environment (e.g., safety climate, leadership, and organizational factors) and individual antecedents of safety (e.g., attitudes and individual differences, including personality). According to the model, these distal antecedents influence one’s safety knowledge, or how well employees know how to perform safely, and safety motivation, or how much an individual is willing to enact and engage in safety

behaviors. These in turn work to affect safety performance that ultimately leads to quantifiable safety outcomes of injuries, illnesses, and in the extreme, fatalities.

In order to align with our mission of integration, we have adapted and expanded Neal and Griffin's (2004) model to take into account not only the occupational accident/injury literature, but also the mistreatment literature. As can be seen in Figure 2, we propose that for both safety from physical hazards and from mistreatment there are a series of corresponding, and in some cases identical, distal and proximal factors that relate to behavior that either helps protect or leaves one vulnerable to both accidents and mistreatment. As we will discuss at length below, safety climate has been shown to be an important factor in safety from accidents/injuries (Beus, Payne, Bergman, & Arthur, 2010), whereas several climates have been proposed to be important factors in safety from mistreatment, such as violence prevention climate (Kessler, Spector, Chang, & Parr, 2008). Leadership has also been shown to relate to both accidents/injuries and mistreatment exposure. Thus, we propose that both climate and leadership are common elements in overall safety. In addition, there has been a great deal of research in both domains linking personality and other individual differences to safety behavior and outcomes. This line of research helps explain why people differ in their tendencies to experience injuries, violence, and mistreatment at work.

Insert Figure 2 about Here

Although the Neal and Griffin (2004) model suggests a temporal flow from environment and personal factors to knowledge/motivation to behavior, and finally to

outcomes, we suggest a more dynamic flow in which variables at each stage of the model might affect variables at earlier stages. Thus the two-headed arrows suggest a feedback loop whereby, for example, being injured on the job might affect future behavior.

Although we only show these nonrecursive relationships for adjacent stages in the model, it is possible that they have more distal effects. For example, being injured might provide feedback that increases knowledge, and it might increase motivation to follow protocols in the future. The occurrence of an accident in a workgroup might affect the behavior of coworkers and supervisors so that safety is taken more seriously, thus improving the safety climate.

The expanded model considers mistreatment from the perspective of the target, as it is a model that is concerned with factors that lead to exposures. The literature on mistreatment also considers it from the perspective of the actor, that is, what are the factors that might lead someone to engage in this behavior. The underlying processes between the actor and target are somewhat different, so we did not incorporate unique actor factors into the model. There is some overlap where the mistreatment behavior of the actor leads to retaliation that then turns the actor into the target.

Distal Environment: Climate and Leadership

Climate and leadership can be conceptualized as operating at both the individual and group levels. Discussions and operationalizations of climate in most cases explicitly note the level at which it is considered. Individual perceptions of climate, assessed at the person-level, are distinguished from shared perceptions, typically assessed by aggregating individual perceptions among members of a meaningful social unit into an average score that reflects the extent to which perceptions among individuals from the

same unit are in concert. Studies of climate have focused on both levels to provide a more complete picture of whether findings concerning individual perceptions will hold when aggregated to the higher group level.

Leadership can also be considered from both the individual or group level. A single leader or supervisor typically heads a work unit resulting in several individual employees sharing the same leader. Although there are individual relationships of leaders with each follower that can vary (Graen & Uhl-Bien, 1995), there is also a shared component to leadership that can be reflected in particular sets of behaviors or styles. For example, leaders can be a major source of climate for employees through their emphasis on and support for safety (Zohar & Luria, 2003). In this way climate and leader behaviors work hand in hand to encourage the safety behavior of followers, and thus are two related factors that contribute to safety outcomes of accidents/injuries and mistreatment.

In Table 1, we summarized relationships of climate and leadership with both accidents/injuries and mistreatment from four meta-analyses (Christian, Bradley, Wallace, & Burke, 2009; Clarke, 2013; Nahrgang, Morgeson, & Hofmann, 2011; Yang, Caughlin, Gazica, Truxillo, & Spector, 2014). As we note below, in many cases relationships are quite similar between the two types of hazards.

 Insert Table 1 about Here

Safety Climate

Whether individual or shared, safety climate is employees' perceptions of how much their organization values safety and to what extent an organization attempts to

achieve a safe work environment (Neal, Griffin, & Hart, 2000; Zohar, 2000). Safety climate concerns the behaviors that supervisors reward and support (Zohar & Luria, 2010). It should be noted that safety climate perceptions are focused solely on how much employees believe the organization values safety practices and policies in the workplace, and may not necessarily reflect perceptions of the likelihood of accidents and injuries in the workplace. For example, an employee may believe that his or her workplace is potentially more hazardous than most because of the type of work performed (e.g., healthcare), but this individual may still perceive a strong climate for safety within their organization. In such a case, an employee likely perceives that his or her organization's managers value and attempt to reduce the possibility of injuries and illness to the best of their ability, despite the inherent dangers in the job.

Zohar (1980) created organizational safety climate based on early organizational climate research (James & Jones, 1974; Schneider, 1975). Safety climate perceptions influence the safety behaviors of employees through the policies, practices and procedures of organizational management (Zohar, 1980). Since its creation safety climate has grown to be a predominate dimension of organizational climate, and has been linked to a myriad of important safety outcomes encompassing both the physical and psychological well-being of employees (Christian et al., 2009; Nahrgang et al., 2011; Neal et al., 2000). Although safety climate perceptions exist at the individual employee level, and thus employees in the same unit can have idiosyncratic experiences and perceptions, it is also presumed that there is a portion shared among work unit members, suggesting that there is an element of shared social reality about how the organization operates, and what sorts of behaviors are expected, as well as what behaviors are

discouraged. This means that although safety climate is a psychosocial variable without tangible physical manifestation, it can still have an objective nature in the consensus of unit members on the nature of the climate within their work unit.

In the safety climate literature there has been substantial debate about what the content of the dimensions of safety climate should encompass. Zohar (1980) identified eight separate dimensions of safety climate, but others have suggested that there may be as few as two interpretable dimensions (for a full review see Neal & Griffin, 2004). To further complicate the safety climate factor structure, research has suggested that some dimensions may manifest at different levels of analysis (Zohar, 2000). However, regardless of the exact factor structure, all scales measuring safety climate appear to generally focus on management commitment and employee involvement with safety in an organization. In addition, limited evidence has been found to suggest differential prediction of related outcomes across safety climate's proposed lower-order factors (Neal & Griffin, 2004). This suggests that although theoretically the construct is composed of numerous dimensions, these dimensions operate together in much the same way to create individual and group level perceptions of overall safety climate. The study of these dimensions in the literature thus far has provided limited benefit above the study of global climate in terms of predicting both safety behavior and outcomes.

Regardless of its factor structure, organizational safety climate has been found to relate to a variety of organizational safety variables and outcomes. Although these relationships have been well studied, the direct effect between safety climate and accidents and injuries is smaller than one might expect. Two meta-analyses of the safety climate literature (summarized in Table 1) found approximately the same strength of

relationship between climate and safety outcomes ($p = -.22$; Clarke, 2006) versus ($p = -.24$; Nahrgang et al., 2011). The Clarke meta-analysis failed to find a significant relationship (confidence interval included zero), which is likely due to the smaller number of studies included in the older Clarke analysis. In large part the modest relationship is likely due to the fact that accidents and injuries are not frequent in most workplaces, and thus in any given investigation, there is a significant restriction of range. Furthermore, as suggested by the Neal and Griffin (2000) model, climate is a quite distal antecedent of safety outcomes, and is likely to have stronger effects on the more proximal antecedents of outcomes than it would on the outcomes themselves. Rather than safety climate directly influencing the occurrence of accidents and injuries, the model proposes that safety climate operates primarily through increasing the motivation and knowledge of employees in addition to changing their behavior to decrease accidents and injuries (Griffin & Neal, 2000). These researchers found support for the mediating influence of safety specific motivation and knowledge on the relationship between safety climate and safety behavior, and were able to replicate these results in a 5-year lagged longitudinal study (Neal & Griffin, 2006). Specifically, safety climate related more strongly to safety compliance (following required safety protocols) and safety participation (actively promoting safety in the workplace beyond task requirements) than it did to safety outcomes. The Clarke (2006) meta-analyses showed that safety climate is related to both forms of safety performance behavior: safety compliance ($p = .43$) and safety participation ($p = .50$). In an attempt to refine our understanding of the effects of safety climate, more recent meta-analytic investigations have found that safety climate may exert most of its influence on safety outcomes through indirect paths, such as

performance behaviors (Clarke, 2013) and safety related motivation and knowledge (Christian et al., 2009). This suggests that there may be more nuanced pathways as opposed to a simple direct path that explain safety climate's relationship with the occurrence of accident and injuries; however, it is possible that at least some of the effects of safety climate might not be directly related to behavior. For example, organizations with good safety climates might create safer physical workplaces that reduce potential exposure to hazards, thus making it more difficult for individuals to hurt themselves when they violate safety protocols.

Mistreatment Climates

A number of climates concerned with keeping employees safe from workplace mistreatment have been extended from the safety climate literature. Although each climate is concerned with a specific class of behaviors, they have been characterized as a form of mistreatment climate by Yang et al. (2014). The most generic of these climates is violence prevention climate that is concerned with safety from both physical violence and psychological abuse (Kessler et al., 2008; Spector et al., 2007). More specialized mistreatment climates concern bullying (Hutchinson, Jackson, Wilkes, & Vickers, 2008), and incivility (Ottinot, 2008).

Violence Prevention Climate. Violence prevention climate was originally created as a direct extension of the safety climate construct, and its conceptualization was based upon many of the core safety climate findings and measures. Violence prevention climate is concerned with policies and practices that are designed to keep employees safe from mistreatment (Kessler et al., 2008; Spector et al., 2007). Although safety climate and violence prevention climate are both concerned with workplace injuries, the former is

concerned primarily with unintentional or accidental injury, whereas the latter is concerned with intentional acts of violence that might result in physical injury as well as psychological abuse that can result in psychological injury.

The most frequently used violence prevention climate scale, the Violence Prevention Climate Survey or VPCS, by Kessler et al. (2008) contains three relatively independent subscales: Policies and Procedures (written rules for safe behavior), Practices and Response (how management responds to and takes steps to prevent violence), and Pressure for Unsafe Practices (the extent to which productivity is given priority over safety). These three subscales mirror dimensions that have been found in the safety literature to be among the most important components of safety climate (Zohar, 1980; Zohar & Luria, 2005).

In a series of studies, violence prevention climate has been shown to relate, as expected, to mistreatment in both cross-sectional (Chang, Eatough, Spector, & Kessler, 2012; Kessler et al., 2008; Spector et al., 2007) and longitudinal (Yang, Spector, Chang, Gallant-Roman, & Powell, 2012) studies. Furthermore, violence prevention climate is related to fear of future violence and both physical health and psychological well-being (Kessler et al., 2008; Mueller & Tschan, 2011), even after controlling for previous mistreatment exposure (Spector et al., 2007).

Although the VPCS contains three subscales, there has been no consistent pattern across studies to suggest that one is more important than the others in its relationship to mistreatment. All three dimensions have been linked to mistreatment, but results have been inconsistent across studies. In their initial study Kessler et al. (2008) found that Practices and Pressure (but not Policies) related significantly to physical violence, but all

three of the dimensions related to psychological abuse. Furthermore, Practices and Pressure related similarly to physical symptoms and emotional strain, whereas Policies showed a different pattern. Chang et al. (2012) found a similar pattern of relationships across all three subscales for violence, abuse, and emotional strain. On the other hand, in a longitudinal study in which violence prevention climate was measured at time 1, only Pressure was able to significantly predict time 2 physical violence (Yang et al., 2012). However, in another longitudinal study, only Practices were able to significantly predict physical violence over time, although all three subscales had significant correlations with physical violence cross-sectionally (Spector, Zhou, & Yang, 2013).

One gap in the violence prevention literature is that it has yet to extensively investigate the pathway through which violence prevention climate operates in the same detail as has been done with safety climate. However, the one investigation that has included potential intervening mechanisms suggests that this climate form might operate through the same mechanisms as proposed by the Neal and Griffin (2004) safety model. Specifically, Chang et al. (2012) included measures of violence prevention motivation, and violence prevention compliance and participation that were based on the measures used by Neal and Griffin (2006) to test their model of workplace accidents. Chang et al. (2012) found that violence prevention motivation was related to both violence prevention compliance and participation, and both forms of behavior were significantly related to both physical violence and psychological abuse. These findings are quite similar to those found in meta-analyses of the safety climate literature (e.g., Christian et al., 2009).

Civility Climate. Civility climate is a more specific construct than general violence prevention climate as it focuses only on incivility. Although we include

incivility in our discussion of mistreatment, it is considered a mild form of negative social experience that is conceptually distinct. As Pearson et al. (2005) define it, incivility concerns discourteous and rude behavior that violates norms for mutual respect among employees. It is considered low-level abuse where the harmful intent of the actor is not clear.

Ottinot (2008) developed a civility climate scale that was based largely on the safety climate and violence prevention climate literatures. His measure included three subscales, two of which (Policies and Response) corresponded to two of the VPCS subscales. The third subscale (Intolerance) concerned the organization management's tolerance for employee engagement in uncivil behavior. All three subscales of this measure, assessed by target employees and a coworker, correlated significantly with employee reports of being targets of incivility. Furthermore, all but coworker reports of intolerance correlated significantly with employee reports of their own psychological abuse as actors. In a follow-up multi-level study in a public school system, Ottinot (2011) found similar results at the school level, that is, the shared climate among teachers within the same school was related to the level of incivility in the school.

Bullying Climate. The safety related climate type that has received the least amount of attention in the literature pertains to the aspects of an organization that specifically reduces the occurrence of bullying behavior within workgroups (Hutchinson et al., 2008). Although conceptually overlapping to some extent with violence prevention climate, bullying climate is focused specifically on bullying, and on the facets of organizational climate that perpetuate bullying behaviors occurring among members of a workgroup. Hutchinson et al. (2008) developed a bullying climate scale that included

subscales of informal organizational alliances, organizational tolerance and reward, and misuse of legitimate authority processes and procedures. All three subscales significantly related to the incidence of workplace bullying. Much like other forms of organizational climate, bullying climate was associated with psychological distress and negative health consequences for employees.

Connections among Climate Types

Conceptually, each form of climate (i.e., bullying, incivility, safety, and violence) are distinct, and so we might assume that there would be domain specificity in that each would predict within its own domain better than those from other domains. That is, safety climate would predict injuries due to accidents better than the other climates would, and violence prevention climate would predict mistreatment better than would safety climate. Although the research looking across domains is scant, there is some evidence that these climates are overlapping, and perhaps reflect a higher order climate of management general concern for health and safety that transcends the specific exposures that might be present in the workplace.

One piece of evidence that at least the mistreatment climates are overlapping comes from the aforementioned meta-analysis of mistreatment climates. Yang et al. (2014) meta-analyzed studies that collectively used 10 different mistreatment climate measures that included workplace incivility climate, physical aggression climate, verbal aggression climate, and bullying climate to see their relationships with a variety of variables including physical violence, psychological abuse, health, and well-being (see Table 1). They first combined results of studies across all 10 climate types. They then repeated the analysis after deleting studies that used the most popular scale (VPCS) that

was used in 42% of studies, finding that results were very much the same either way. The similarity of results across the two sets of analyses are evidence that these various mistreatment climates scales are in many ways interchangeable with the measure of violence prevention climate, and perhaps with one another.

One noteworthy finding of Yang et al. (2014), as shown in Table 1, is that the meta-analytic estimates of the relationship between mistreatment climate and organizational and employee outcome variables (e.g., prevention motivation, prevention performance, job satisfaction, and physical strains) are of the same magnitude and direction as corresponding relationships found in existing safety climate meta-analyses (Christian et al., 2009; Clarke, 2006; Nahrgang et al., 2011). All outcome variables that were measured in both the mistreatment and safety climate meta-analyses have overlapping confidence intervals. This apparent similarity in the types and the strengths of outcomes further suggests that there may be substantial overlap between safety and violence prevention climate types.

There is also evidence for cross-domain relationships between safety climate and some forms of mistreatment climate. For example, Walsh et al. (2012) showed that their measure of civility climate was significantly related to both employee and management safety behaviors. They found support for a model in which behavior was related to safety outcomes through decreased work-safety tension (McGonagle, Walsh, Kath, & Morrow, 2014). These results largely mimic established models found in the organizational safety climate literature (Griffin & Neal, 2000; Neal & Griffin, 2004, 2006). As noted earlier, Chang et al. (2012) adapted the safety motivation and performance measures to the violence domain, finding quite similar results.

Perhaps the strongest evidence again domain specificity comes from a study that directly tested for it by including measures of incivility, safety, and violence prevention climates along with outcomes for each domain (Gazica & Spector, 2013). This study showed that with few exceptions, all three climates were significantly related to one another and to outcomes across all three domains. Furthermore, there was little evidence that correlations would be stronger when climate and outcome matched. Only experienced incivility was better predicted by its corresponding climate, although the other climates were also significantly related to incivility.

The parallel and shared outcomes and mechanisms through which these climate variables operate, and the lack of domain specificity suggest that there may be a higher-order general climate factor shared by these various forms of climate. Thus it might be more productive to conceptualize a generalized construct of safety climate as encompassing the wider domain of accident, injury, illness, and mistreatment prevention. In fact, it may be advantageous to investigate the structure of climate along the dimensions of policies, practices, pressure, and tolerance for unsafe behavior, as found in the multidimensional scales (Kessler et al., 2008; Ottinot, 2008) that cuts across what have been to date separate domains of injuries/accidents versus mistreatment.

Although not specific to the safety domain, some preliminary evidence for a more general climate factor anteceding safety climate was found by Neal et al. (2000). They found support for a model in which perceptions of safety specific climate mediated the relationship between general organizational climate (e.g., non-domain specific organizational attitudes and affective responses) and safety outcomes. Thus, perceptions of safety climate may have been influenced by a broader climate component. These

findings suggest that the types of organizations that find it beneficial to create a positive general climate are also the types of organizations that are concerned with safety specific factors.

Safety and Violence Prevention Leadership

Leadership is another distal component in the Neal and Griffin (2004) safety model, as leaders can have a significant impact on the motivation and behavior of subordinates. There are at least two aspects of leadership that are relevant here. First, leaders engage in behaviors that are directly relevant to safety. Such behavior can both shape and transmit climate in general (Dragoni, 2005; Kozlowski & Doherty, 1989), and climate specific to safety (Wu, Lin, & Shiau, 2010; Zohar, 2000). Second, the quality and style of overall leadership can affect safety. This suggests that good leaders behave in ways that naturally promote safety through a focus on the well-being of subordinates. Therefore, leaders who create one form of safety climate may create others as well. A leader who promotes safety from injury due to accidents, for example, will likely promote safety from violence and psychological abuse.

Safety-Specific Leadership. Supervisors can participate in safety, both by communicating the need for safety and by following safe procedures that provides a safety role model. Such behaviors can serve as a foundation for building a safety climate for a workgroup in which safety compliance and participation are the norm. Zohar (2000) discusses how climate arises from the behaviors of top management and immediate supervisors. Organizational policies and procedures are designed at higher levels of organizations that are the source of written rules and expectations. However, it is the immediate supervisor who is largely responsible for communicating policies and

procedures, and for translating them into local practices. Individual employee climate perceptions and their shared counterparts arise largely from interactions with supervisors, listening to what they say and observing what they do.

Evidence can be found showing a connection between supervisor safety-related behavior and safety climate and outcomes. For example, Barling, Loughlin, and Kelloway (2002), using an adapted safety specific leadership behavior scale found that leaders who actively engaged in communicating safety policies to employees and who promoted accident prevention policies within their workgroups created a stronger organizational climate for safety and had fewer accidents and injuries.

In addition to transmitting climate, safety behavior by supervisors can have direct effects on employee motivation, behavior and safety outcomes. The construct of safety integrity by supervisors means that supervisors actively promote safety in subordinates by enforcing safety rules and engaging in safe behaviors themselves (Leroy et al., 2012). Safety integrity by supervisors has been found to relate to subordinates giving high priority to avoiding accidents (Leroy et al., 2012), as well as to their safety compliance, and safety outcomes (Halbesleben et al., 2013).

Wu et al. (2010) investigated the connection between specific safety leader behaviors at middle and top management levels and safety climate (they used the term safety culture). They designed scales to assess three dimensions of safety behavior for each level, and all were significantly related to safety climate. For top management the dimensions were Safety Caring (e.g., talking to employees about health and safety), Safety Coaching (e.g., emphasizing that safety is more important than productivity), and Safety Controlling (e.g., regularly reviewing health and safety performance). For middle

management the dimensions were Safety Decision-Making (e.g., creating plans for health and safety), Safety Informing (e.g., publicizing safety policies and practices), and Safety Interaction (e.g., talking to employees about safety).

Leadership Quality and Style. The safety literature has found that it is not only leadership behaviors specific to organizational safety that predict the occurrence of accidents and injuries within the workplace, but that effective leadership in general has the potential to contribute to a safe workplace. Previous research has suggested that when it comes to the leadership domain, specificity is unnecessary to reduce the occurrences of accidents and injuries (Zohar, 2002). High quality leadership in general is associated with low frequency of accidents in the workplace. For example, a longitudinal intervention investigation found that safety specific transformational leadership training did not have a significantly higher impact on employee perceptions of organizational safety climate than general transformational leadership training (Mullen & Kelloway, 2009). Additionally, a recent meta-analysis of non-safety specific transformational and transactional leadership styles (see Table 1) found support for a model in which both types of leadership were related to safety performance and safety outcomes through their influence on perceived safety climate of an organization (Clarke, 2013). These studies suggest that it is not only safety specific leadership qualities that have the power to reduce accidents and injuries, but rather that generally effective and positive leadership is a potentially important element in creating a safer workplace.

Zohar (2002) found evidence to suggest that the relationship between positive leadership forms (i.e., transformational and constructive) and workplace injury is mediated by group-level perceptions of the preventive action of their immediate

supervisor (e.g., considering employees suggestions for improving safety), which is a component of the group-level safety climate measure developed by Zohar (2000). The majority of the benefits of positive leadership operate through preventative rather than reactive supervisor behaviors (e.g., prioritizing safety over production goals). Thus, safety behaviors performed after the occurrence of an accident by leaders were largely ineffective at reducing the rate of subsequent injury. Additionally, this investigation found that organizations do not have to sacrifice productivity in order to maintain a safe workplace. Furthermore, their results suggest that a component of organizational climate interacted with leadership to further strengthen employee safety perceptions. Specifically, the priority of safety procedures assigned to supervisors by higher management interacted with positive leadership styles to further increase employee group-level perceptions of preventive action behaviors of their supervisors. The measure of assigned safety priority employed by this investigation can be considered an indicator of higher-level organizational climate because the items presented to the supervisors pertained specifically to the type of safety procedures that were assigned to them by higher management.

Whereas top management enacts organization-wide safety climate in the form of policies and procedures, first level supervisors transmit that climate to their work units by indicating what sorts of behaviors are appropriate (Zohar & Luria, 2004). Furthermore, positive leadership styles in addition to high levels of safety climate appear to work together to contribute to shared perceptions of workplace safety among group members (Zohar & Luria, 2004). Lending further support to this argument Hofmann, Morgeson, and Gerras (2003) found that when both organizational safety climate and leadership

quality were high, employees were most likely to perceive that safety participation was part of their formalized job responsibilities. Partially through the formalization of these safety roles, high quality leadership and positive organizational safety climate ultimately worked together to predict if employees routinely performed these safety related behaviors. Although certainly other variables come into play, the safety literature has appeared to have identified both organizational climate and leadership types as the major contributors to group-level safety related outcomes. Understanding the influence of leadership and organizational climate is complex because both organizational climate and leadership influence each other in addition to independently influencing safety behavior by employees directly.

The majority of our discussion of leadership has focused on the relationships between effective leadership styles, safety climate, and the occurrences of accidents and injuries; however, we expect effective leadership to operate through the same mechanisms with mistreatment prevention. Although little research to our knowledge has been conducted concerning the role of leader behavior in the development of violence prevention and other mistreatment climates, there is reason to believe that they would operate similarly. Though we were unable to locate studies linking leadership to being the target of mistreatment, several studies have found a direct link between leadership style and reports of interpersonal aggression from the perspective of the actor. Specifically research has found a direct relationship between the charismatic leadership style of supervisors and the workplace mistreatment among workgroup members (Hepworth & Towler, 2004). Moreover, a meta-analysis combining multiple styles of leadership found positive relationships between poor leadership (e.g., hostility and over control) and both

supervisor and coworker directed mistreatment among employees (Hershcovis et al., 2007). However, it should be noted that this research informs mistreatment among coworkers, but offers little insight about mistreatment from other sources, such as clients, customers, or patients. Future research should consider examining mistreatment from these other sources.

The same types of leaders who encourage their employees to avoid accidents and injuries are also probably able to equip their subordinates with the ability to avoid and properly handle potential mistreatment. Although the study of domain-specific leader behavior has been fruitful, it is possible that like climate, there is also a higher-order general safety leadership style that helps protect workers from both physical and interpersonal hazards.

Individual Differences

Individual differences, mainly personality, have been studied in relation to both the safety and mistreatment literatures. As illustrated in Figure 2, we propose that personality serves as a distal precursor to safety motivation, behavior, and outcomes. In this section we will review the most commonly studied individual differences within the domains of both workplace accidents/injuries and mistreatment. Specifically, the Five Factor Model dimensions (Digman, 1990) and individual personality traits of self-esteem, locus of control, and demographic variables (gender and age) are considered in detail below. It should be noted that for mistreatment we summarize the literature from both the actor and the target perspective.

Tables 2-4 summarize results of nine meta-analyses (Berry, Ones, & Sackett, 2007; Bowling & Beehr, 2006; Christian et al., 2009; Clarke & Roberston, 2008; 2005;

Hershcovis et al., 2007; Kaplan, Bradley, Luchman, & Haynes, 2009; Lanaj, Chang, & Johnson, 2012; Salgado, 2002) that in part or whole linked individual differences to safety and mistreatment. In cases where more than one meta-analysis reported a relationship, we showed each separately. Table 2 contains relationships of personality with safety performance. There have been only a few studies of performance, and they included only a handful of personality variables. In addition to the ones we will discuss below, the table includes risk taking propensity, and the two regulatory focus dimensions of promotion focus and prevention focus (Crowe & Higgins, 1997). Table 3 summarizes meta-analyses relating personality to accidents and injuries at work. Finally, Table 4 summarizes results of meta-analyses linking personality and demographics of age and gender to physical violence and psychological abuse, which were combined. Results were separated by actor versus target.

 Insert Tables 2-4 about Here

Five Factor Model of Personality

Conscientiousness. Conscientiousness is the tendency to be dependable, competent, hard-working, and achievement oriented (Costa & McCrae, 1992). In terms of accidents and injuries, research suggests that conscientiousness is an important trait because of individuals' dependability in terms of following policies and protocols (i.e., employees consistently abide by safety regulations) and inherent motivation to perform safely (Christian et al., 2009). For instance, Cellar, Nelson, York, and Bauer (2001) surveyed undergraduates and found that individuals are in fact more likely to experience

workplace accidents when they have lower levels of conscientiousness, while Arthur and Graziano (1996) also found this significant, negative relationship in a sample consisting of both undergraduate students and employees from a temporary employment service. Also, Wallace and Vodanovich (2003) examined the relationship between conscientiousness and accident involvement in two different samples. Across both of these samples, results demonstrated a significant, negative relationship between conscientiousness and workplace accidents, whether the accident assessment was based on self-reports, supervisor-reports, or organizational records. Further, the negative relationship between conscientiousness and accident involvement was supported by the meta-analysis conducted by Christian et al. (2009; $\rho = -.26$), whereas a significant, positive relationship was found between conscientiousness and safety performance ($\rho = .18$). It was also supported by Clarke and Robertson's (2008) meta-analysis, in which the relationship between conscientiousness and accident involvement was significant and positive ($\rho = -.31$).

Since individuals high on conscientiousness tend to be dependable and follow rules, one might expect them to be unlikely to be involved in mistreatment. However, conscientiousness has been measured sporadically within the workplace mistreatment literature, and results are mixed. For instance, Glaso, Matthiesen, Nielsen, and Einarsen (2007) found victims of workplace bullying to be less conscientious than their nonbullied counterparts. In contrast, a study conducted by Coyne, Seigne, and Randal (2000) revealed the opposite relationship, such that targets of bullying tended to be *higher* in conscientiousness. To complicate things further, some studies have failed to find a significant relationship between conscientiousness and being a target of workplace

violence or abuse in either direction (e.g., Coyne, Chong, Seigne, & Randall, 2003).

Thus, from the target perspective, the potential role of conscientiousness is unclear, perhaps because it is complex and depends on context.

Regarding actors, it appears that conscientiousness is negatively related to engaging in mistreatment. For instance, research suggests that conscientious individuals are less likely to engage in general counterproductive workplace behaviors, which may be aimed at individuals or organizations (e.g., Dalal, 2005). Further, past research by Taylor and Kluemper (2012) found a negative relationship between conscientiousness and supervisor rated mistreatment. Finally, Berry et al. (2007) conducted a meta-analysis and found perpetrator conscientiousness to be negatively related to mistreatment, termed interpersonal deviance ($\rho = -.23$). Thus, the extant literature provides evidence to suggest that highly conscientious individuals may be less likely to engage in mistreatment, although whether they are less likely to be targets is unclear.

Agreeableness. Agreeableness is defined as the tendency of individuals to have interpersonal trust, friendliness, modesty, and the general desire to cooperate or comply with others (Costa & McCrae, 1992). Research relating agreeableness to negative safety outcomes has generally found evidence for a negative relationship between these variables. For example, in a study of undergraduates, Cellar and colleagues (2001) found that agreeableness was a significant negative predictor of workplace accidents. Further, Clarke and Robertson (2008) found significant meta-analytic support for this relationship between agreeableness and occupational safety, such that agreeableness was negatively related to workplace accident involvement ($\rho = -.44$). They suggested that this relationship might exist because agreeable people have a tendency to cooperate with

others (Barrick & Mount, 1991), and to obey group norms. Thus, if safety is deemed important, these individuals are likely to cooperate and adhere to these safety rules and regulations. Conversely, if individuals are low in agreeableness, they may not be as motivated to cooperate with others, and in fact may be more likely to respond aggressively if confronted about their unsafe behaviors and lack of cooperation. This lack of cooperation, in turn, may increase their chances of occupational accidents, and could be a source of interpersonal conflicts that lead to mistreatment, as well.

In addition, the safety literature has found a significant relationship between the tendency to be aggressive, which is the opposite pole of agreeableness (Costa, McCrae, & Dye, 1991), and accident involvement. Specifically, research examining the aggressiveness trait of pilots (Conger et al., 1957), bus drivers (Roy & Choudhary, 1985), professional drivers (Sümer, 2003), and railway workers (Sah, 1989) have all provided evidence to suggest that individuals who are high in the trait of aggressiveness are more likely to have workplace accidents than individuals who are low on aggressiveness.

On the mistreatment side, agreeableness has been linked to engaging in mistreatment-related behaviors. As shown in Table 4, Berry et al. (2007) found a mean effect size of $-.46$ between agreeableness and workplace mistreatment, which was the strongest predictor among the five factor model dimensions.

Finally, not much research has been done to examine agreeableness as an antecedent to being a target of mistreatment. However, of the research that has been done, low agreeableness tends to be associated with being a target. For example, Milam, Spitzmueller, and Penney (2009) and Glaso et al. (2007) found that less agreeable individuals are more likely to experience workplace bullying and incivility. This is again

likely due to a lack of motivation to cooperate or comply with others (Barrick & Mount, 1991). However, more research that explicitly relates these variables should be done in order to empirically clarify the role that agreeableness plays in instigating or mitigating mistreatment in the workplace.

Extraversion. Extraversion is defined as a general disposition to prefer social activities (Costa & McCrae, 1992). Results are mixed regarding extraversion as an antecedent to workplace accidents/injuries. For example, research has found extraversion to be negatively related to workplace accidents in both firefighters and bus drivers (Liao, Arvey, Butler, & Nutting, 2001; Roy & Choudhary, 1985). Further, positive affectivity, which is related to extraversion (Clark & Watson, 1999), has been found to have a negative relationship with workplace accidents, as well (Iverson & Erwin, 1997). An explanation for this negative relationship may lie in past research that has linked positive affectivity to increased self-efficacy (Judge, 1993) and more careful appraisal of situations (Staw & Barsade, 1993). Specifically, these results suggest that individuals high in extraversion may be more careful and have higher safety performance that should ultimately lead to fewer accidents and injuries.

On the other hand, there is evidence to suggest that global extraversion and other specific facets of extraversion have the opposite relationship with accidents and injuries. For example, Sümer (2003) found that sensation seeking, highly related to the extraversion facet of excitement seeking (Aluja, García, & García, 2003), was significantly related to the number of traffic accidents in a sample of professional drivers. Further, Powell, Hale, Martin, and Simon (1971) found that in a sample of mill workers, extraversion was a significant predictor of increased workplace accidents. Researchers

have hypothesized that the negative relationship between extraversion and safety outcomes is a result of an extravert's lower level of vigilance (Eysenck, 1962), which results in decreased safety performance. Further, the facet of excitement seeking may play a particular role in accidents, as individuals who are high in this facet tend to take increased risks (Jonah, 1997). All this said, there is still other research that found no significant relationship between extraversion and safety (e.g., Arthur & Graziano, 1996; Cellar & Nelson, 2001). In fact, in two meta-analyses relating the Big Five personality factors to workplace accidents, results found the relationships between overall extraversion and safety (performance and outcomes) to be nonsignificant, with mean correlations ranging from $\rho = -.07$ (Christian et al., 2009) to $\rho = .02$ (Clarke & Roberston, 2008).

Results are also mixed regarding extraversion in the context of workplace mistreatment. For instance, Glaso et al. (2007) found that individuals who were lower in extraversion were more likely to be bullying victims than their high extraversion counterparts. Similarly, research by Coyne et al. (2000) suggests that extraversion is inversely related to workplace mistreatment exposure. Specifically, individuals high in extraversion are generally characterized as being highly socially adjusted and positive (Costa & McCrae, 1992), and thus should be less likely to upset others in a way that might put them at risk of being a victim of violence or abuse. However, extraverted individuals are also often found to be dominant, impulsive, and overly assertive (Costa & McCrae, 1992), which may lead others to interpret their behaviors as interpersonally aggressive and therefore provocative. From the actor side, there is little evidence that

extraversion is related to violent or abusive behavior. The Berry et al. (2007) meta-analysis found a nonsignificant mean correlation of .02.

Openness to Experience. Openness to experience is defined as the tendency to be imaginative, curious, cultured and unconventional (Costa & McCrae, 1992). Existing work attempting to link openness to experience to safety outcomes (i.e., accidents and injuries) like much of the research concerning personality, has yielded mixed results. For example, Arthur and Graziano (1996) did not find evidence of a relationship between openness to experience and traffic accidents, suggesting that for occupations involving driving, openness may not be a significant predictor of safety outcomes. Alternatively, in a study by Parker (1953), archival records of commercial truck drivers were examined to investigate potential antecedents of truck driving accidents. Results from this analysis suggested that individuals with literary and artistic interests (which may be considered similar to the artistic interests facet of openness) were significantly more prone to preventable accidents than those who were low in artistic and literary interests.

Further, Clarke and Robertson (2008) examined the relationship between openness and accidents via meta-analysis, and results demonstrated a significant, positive relationship between these variables ($\rho = .50$). They suggested that individuals high in imagination, curiosity, and unconventionality may be less likely to focus on workplace tasks and safety regulations, and therefore may be more likely to have accidents in the workplace. It should be noted, however, that the number of studies included in this analysis was quite small, and the meta-analysis by (Salgado, 2002) failed to find a significant relationship, so at this point it is unclear what the relationship of openness to safety might be.

Studies have tended to find that openness to experience does not relate to violence or abuse in the workplace, with a meta-analysis failing to find a significant relationship on the actor side (Berry et al., 2007; $\rho = -.09$). It is possible, however, that this trait has not received enough attention at the facet level, as there might be opposite relationships that cancel one another out when combined into a single openness composite score. For instance, perhaps due to open individuals' high tolerance for novelty and unconventionality, they are also tolerant of co-workers and supervisors who exhibit a wide range of behaviors, and therefore would be unlikely to get into disputes. We could find no studies relating openness to mistreatment from the target side.

Emotional stability. Low emotional stability (also referred to as negative affectivity by Watson & Clark, 1984) is defined as the tendency to be reactive to stressful environments, to frequently experience anxiety and other negative emotions, and to worry and be emotionally unstable (Costa & McCrae, 1992). Generally, research suggests that low levels of emotional stability is associated with comparatively high likelihood of occupational accidents and injuries. For instance, in a study by Sutherland and Cooper (1991), offshore drilling personnel who were low in emotional stability reported having significantly more accidents and injuries than individuals high in emotional stability. Similar results have been found for various other occupations such as firefighters (Liao et al., 2001), industrial plant workers (Davids & Mahoney, 1957), and union workers (Iverson & Erwin, 1997). Finally, in meta-analytic analyses conducted by both Clarke and Robertson (2008) and Christian et al (2009), results provided confirmation of this significant, positive relationship between neuroticism (reverse scored emotional stability) and negative safety outcomes ($\rho = .30$ and $\rho = .19$, respectively).

The positive relationship between emotional stability and occupational safety may have several explanations. Low emotional stability has been empirically linked to low motivation to take control over one's environment (Judge, 1993) and to a lack of intrinsic motivation (Furnham, Petrides, Jackson, & Cotter, 2002). Both of these factors are likely to hamper motivation to perform safely in the workplace. Additionally, individuals who are low in emotional stability tend to be hyper-vigilant about their own thoughts and are likely to respond to stressful situations with anxiety, both of which might divert attention away from their behavior and potential hazards in the work environment.

Emotional stability is related to workplace mistreatment, both in relation to actors and targets. For instance, targets of bullying and other forms of mistreatment in the workplace have been found to be lower in emotional stability than non-targets in various samples around the world (e.g., Coyne et al., 2000; Glaso et al., 2007; Matthiesen & Einarsen, 2001; Vartia, 1996). This personality trait has also been linked to abusive supervision, which is psychological abuse specifically from supervisors (Aquino, 2000; Zellars, Tepper, & Duffy, 2002). These results were summarized in a meta-analysis by Bowling and Beehr (2006) who found a mean correlation of .25 between neuroticism (reverse scored emotional stability) and mistreatment. Further, on the actor side, meta-analyses summarized in Table 3 showed a positive correlation of neuroticism with mistreatment.

Various explanations for the relationship between emotional stability and workplace mistreatment exist. From the actor side, individuals who are low on emotional stability are more reactive to stressful situations, and thus experience more negative emotion. Given that negative emotion is associated with and is often considered a trigger

for aggressive behaviors (Spector & Fox, 2005), it would be expected that there would be a negative relationship between emotional stability and engaging in mistreatment. For targets the behavior of low emotionally stable individuals may directly and indirectly provoke mistreatment. To the extent that individuals low in emotional stability engage in aggressive behaviors toward others, they may instigate similar behaviors in kind, or what in the context of incivility, Andersson and Pearson (1999) referred to as the incivility spiral. Individuals low in emotional stability might also inadvertently provoke others. First, they may tend to be suspicious of others (Matthiesen & Einarsen, 2004), which can make it difficult for them to develop positive working relationships with colleagues. Further, individuals who express frequent negative emotions and a general negativity at work might tend to anger others to the point that they engage in abusive and even violent behavior.

Self-Esteem

Self-esteem is the extent to which an individual feels that he or she is a competent, need-satisfying individual (Korman, 1976). There is not a great deal of research to date that has examined self-esteem in relation to workplace safety. However, of the research that exists, self-esteem appear to be negatively related to accidents and injuries, that is the lower one's self-esteem (or generalized self-efficacy), the more likely an employee is to experience workplace accidents and injuries (Cellar, Yorke, Nelson, & Carroll, 2004; Smith & Heckert, 1998). One reason why this relationship exists may be due to individuals low on these traits feeling that they are not capable of performing certain tasks, thus decreasing their sense of control over the situation. Specifically, if they feel they are not capable, then they do not believe that they have the ability to change

things, and therefore they will not act in a proactive manner to avoid or prevent accidents and injuries on the job (Burke, Clarke, & Cooper, 2011, p. 105).

Regarding workplace mistreatment, it appears that self-esteem may play a critical role, both for the actor and the target. For instance, Matthiesen and Einarsen (2007) found in a sample of over 2000 employees that targets of bullying reported significantly lower levels of self-esteem than those who were not involved in bullying at work. Similar results have also been found in research by Harvey and Keashly (2003), and a meta-analysis conducted by Bowling and Beehr (2006) further supports the significant relationship between these variables ($\rho = -.21$). Thus, it appears that being low in self-esteem attracts instances of violence or abuse, perhaps because these individuals appear vulnerable and are seen as “easy targets”. However, as Aquino and Thau (2009) note, it is also possible that self-esteem may be an *outcome* of victimization, such that the experience of being a target itself causes people to experience lower self-esteem.

In terms of actors, research suggests that both the level and stability of one’s self-esteem is related to how likely an individual is to engage in mistreatment. Regarding level, some research has found that individuals are more likely to be aggressive when self-esteem is low (e.g., Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005), while others suggest that aggressive behaviors are more likely when individuals have overly high self-esteem (Baumeister, Smart, & Boden, 1996). However, perhaps even more compelling is the research that examines self-esteem stability, such as research by Kernis, Grannemann, and Barclay (1989) that found that individuals were more likely to react with anger and hostility when they reported their self-esteem as high but unstable. Thus,

it may not be whether self-esteem is consistently high or low, but rather, it is whether or not it is unstable that is a factor in mistreatment.

Locus of Control

Locus of control (LOC) is defined as the generalized expectancy about control over rewards in life (Rotter, 1966). An internal locus of control is characterized by having feelings of personal control, while an external locus of control is characterized by feelings that external forces, such as luck, fate, or powerful others have control. Research suggests that the more external one's locus of control, the more likely he or she is to engage in unsafe practices and have more accidents in the workplace (Janicak, 1996; Jones & Wuebker, 1993). This is likely because an individual with an external locus of control has a tendency to believe that accidents and injuries at work cannot be controlled. Therefore such individuals will hesitate to take positive actions to avoid accidents. Meta-analytic evidence by Christian et al. (2009) supports this relationship, such that individuals with an internal LOC were more likely to abide by safety rules and regulations ($\rho = .35$) and be less likely to have accidents or injuries ($\rho = -.26$) in comparison to their counterparts with an external LOC.

Wuebker (1986) developed the construct and a measure of safety-specific LOC, which is the degree to which an individual feels that the consequences of safety behavior is under his or her control. Aside from early work by Jones and Wuebker (1985; 1993) that found an external safety LOC is related to employee accidents, little research has examined this safety-specific measure of LOC. This construct seems particularly relevant to the study of accidents and injuries.

Regarding actors, LOC has been found to relate significantly to mistreatment. For example, in a study of employees at a mental health facility, Storms and Spector (1987) found that employees having an external LOC were more likely to respond to organization frustration by engaging in aggressive acts than those with an internal LOC. Similar results were found by Perlow and Latham (1993), who found that individuals with an external LOC were more likely to engage in abusive behaviors at work. Additionally, regarding safety-specific LOC, Jones (1985) found evidence to suggest that having an external safety-specific LOC puts individuals at a higher risk to engage in various negative behaviors, such as workplace mistreatment.

Demographics

Gender

There are very large gender differences in the accident and injury experiences of men and women (Hoskins, 2005). The Bureau of Labor Statistics reported that men comprised over 60% of nonfatal injury cases (Bureau of Labor Statistics, 2013), and 92% of fatal injury cases (Bureau of Labor Statistics, 2014a). At least some of the reason for these gender differences in injuries can be accounted for by gender distribution across industry and occupation. Men are far more likely to be found in high-risk occupations where threats to health and safety are commonplace.

The relationship between gender and the potential for being a target of workplace mistreatment is not as clear, as studies have been inconsistent. Some studies found women to report more victimization in the workplace than men (e.g., Aquino & Bradfield, 2000; Cortina, Magley, Williams, & Langhout, 2001), while others the opposite (e.g., Jennifer, Cowie, & Ananiadou, 2003), and still others found no differences

(Vartia, 1996; Zellars et al., 2002). Meta-analytic evidence suggests that females are less likely to be victimized than men (Bowling & Beehr, 2006), though this relationship was quite weak ($p = -.05$), suggesting little differences in the incidence rates across gender.

From the actor perspective, although some studies have found no gender differences (e.g., Douglas & Martinko, 2001; Inness, Barling, & Turner, 2005), others have found that men engage in aggressive behaviors more than their female counterparts (e.g., Dupré & Barling, 2006; Haines, Marchand, & Harvey, 2006; Parkins, Fishbein, & Ritchey, 2006). As shown in Table 4, meta-analyses find somewhat higher rates for men. However, it should be noted that most of these studies measured mistreatment via self-reports, and there is the possibility that there are gender-related reporting biases. As noted by Spector and Zhou (2014), aggressive behaviors are less socially acceptable for women than men, so it is possible that women under-report their mistreatment behavior, and given the small effect size, even a small bias might produce the gender differences that have been observed.

Age

Research has generally found young workers to be more likely to experience accidents and injuries in the workplace (e.g., Chau et al., 2007). As an explanation, it has been suggested that a lack of job experience and knowledge leads to an increased risk for accidents and injuries on the job (Burke et al., 2011, p. 126; Chau et al., 2007). Gyekye and Salminen (2009) found in a study of Ghanaian industrial workers that younger workers (those less than 39 years of age) reported significantly worse perceptions of safety, less compliance with safety procedures, and had more accidents in comparison to older workers (40 years of age and above).

As workers get older, the frequency of accidents decreases (e.g., Chau et al., 2010). However, this is not the case when examining injury *severity*. The older a person, the more likely he or she will be at risk of experiencing a severe injury that can require a long recovery time or even result in permanent disability (Laflamme & Menckel, 1995). The difference in severity of injury is often attributed to the aging process, making older individuals more prone to tissue damage, and needing a longer time to heal. In addition, older workers in some jobs might experience a decline in physical strength and dexterity that increases their chances of severe injury (Burke et al., 2011, p. 125; Chau et al., 2010; Laflamme & Menckel, 1995).

Age does not seem to be as much of a factor in predicting whether or not one will be the target of workplace mistreatment. For instance, Zellars et al. (2002) reported no significant relationship between age and perceptions of abusive supervision. Similarly, meta-analytic evidence suggests that age is not significantly related to mistreatment (Bowling & Beehr, 2006).

Some evidence suggests that older individuals are slightly less likely to engage in workplace mistreatment than their younger counterparts (Haines et al., 2006; Inness et al., 2005; McFarlin, Fals-Stewart, Major, & Justice, 2001). However, other studies have found no significant relationship between age and the mistreatment (Douglas & Martinko, 2001; Dupré & Barling, 2006; Greenberg & Barling, 1999). Further, Greenberg and Barling (1999) found that this lack of a significant relationship was consistent regardless of whether the target was a supervisor, coworker, or subordinate.

Conclusions

Our goal with this chapter was to present an integration and overview of the various threats to worker health and safety that are typically found in disparate literatures. We provide an integrative review of the literatures on potential antecedents to workplace accidents that lead to unintended injury and illness, and on mistreatment in the workplace. Our choice to focus on environmental factors of organizational climate and leadership, and on individual differences of personality, age, and gender was based on the availability of research literature in these areas.

There are many commonalities in the potential antecedents of health and safety shown in Figure 1. These commonalities suggest that it can be fruitful to take a broad view of safety as encompassing a disparate set of potential exposures that lead to an overlapping set of health outcomes. Figure 2 is intended as a step in that direction, expanding the Neal and Griffin (2004) safety model to incorporate an expanded set of motives and behaviors to remain safe from a variety of workplace hazards. Many of the same antecedents might operate across various hazards so that a single program of safety might accomplish multiple goals.

As we discussed, there is evidence that both mistreatment climate (e.g., incivility and violence prevention) and safety climate operate through many of the same mechanisms and have similar outcomes for the physical and psychological health of employees. Although the development of domain-specific climates has the potential to add precision to the prediction of outcomes, the limited evidence to date questions that assumption. In other words there might be a higher-order “safety climate” that encompasses safety not only from physical hazards and accidental exposures, but to interpersonal exposures to mistreatment as well. Organizations that are concerned about

employee safety might not make fine distinctions in the nature of the factors that threaten employee health and well-being. In hospitals, for example, where employees are exposed to many physical and interpersonal hazards, good climates for safety are likely broad and cover all sorts of hazards. Thus as management focuses on safety from biological and chemical hazards, it also focuses on safety from mistreatment, as well. Even though safety protocols might differ depending on the nature of the hazard, whether or not organizations have strictly enforced protocols might apply across the board.

There are individual differences in the extent to which people are injured due to accidents, and are targets of mistreatment. Some variables predict both forms of exposures and outcomes. Other variables differ, for example, gender is an important factor in accidents and injuries, but seems to be at best a minor factor in being the target of mistreatment. Emotional stability seems to be particularly important in both domains, as individuals low on this trait are at particular risk for both accidents/injuries and mistreatment. Although individual differences have been shown to relate to safety behavior and outcomes, it is not entirely clear what the mechanisms might be. Our expanded version of the (Neal & Griffin, 2004) model suggests that the effect is indirect through motivation and knowledge, but research needs to determine if there are more direct mechanisms. For example, Aquino and Thau (2009) noted that the greater likelihood of individuals low in self-esteem to experience mistreatment might be due to their being unable to assertively defend against aggressive behavior by others.

There are many parallels in the literature on workplace accidents and mistreatment. This can also be seen in the research on environmental factors showing that climate and leadership are important for both. It can be seen in the research on individual

differences where in many cases both accidents and mistreatment are predicted by the same personality variables. We integrated both of these streams of research by expanding one of the dominant models of safety, developed to explain accidents (Neal & Griffin, 2004). We not only added corresponding mistreatment variables to the model. As shown in the figure, we also suggest that there are connections between each corresponding safety and mistreatment variable, for example, individuals who are motivated to take action to remain safe from accidents are likely motivated to take action to remain safe from mistreatment. Furthermore, we suggest that the various forms of climate overlap, and that likely organizations with good climates for one hazard will have good climates for others. All this suggests that it would be fruitful to further explore connections between physical and interpersonal exposures with the goal of finding ways to enhance employee safety from all risks. An integrated set of interventions that might include developing a broad climate of safety and effective supervisory practices might go a long way to keep employees safe from all risks to health and well-being.

Figure 1
Workplace Hazards and Associated Health Outcomes

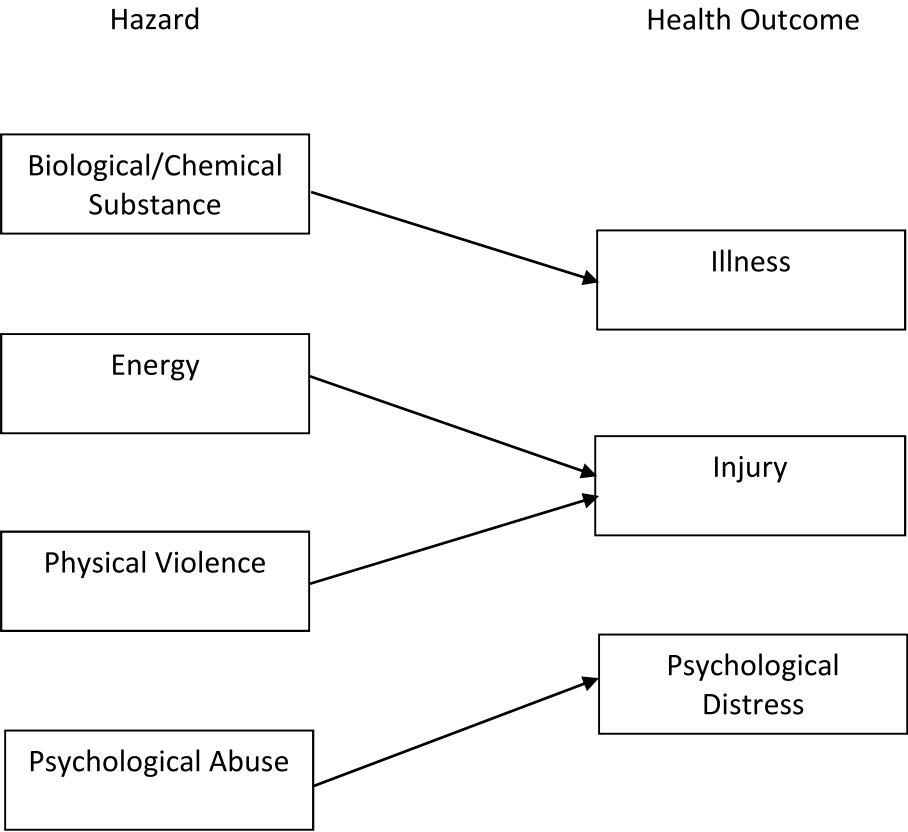


Figure 2

An Integrative Framework of Accidents/Injuries and Mistreatment

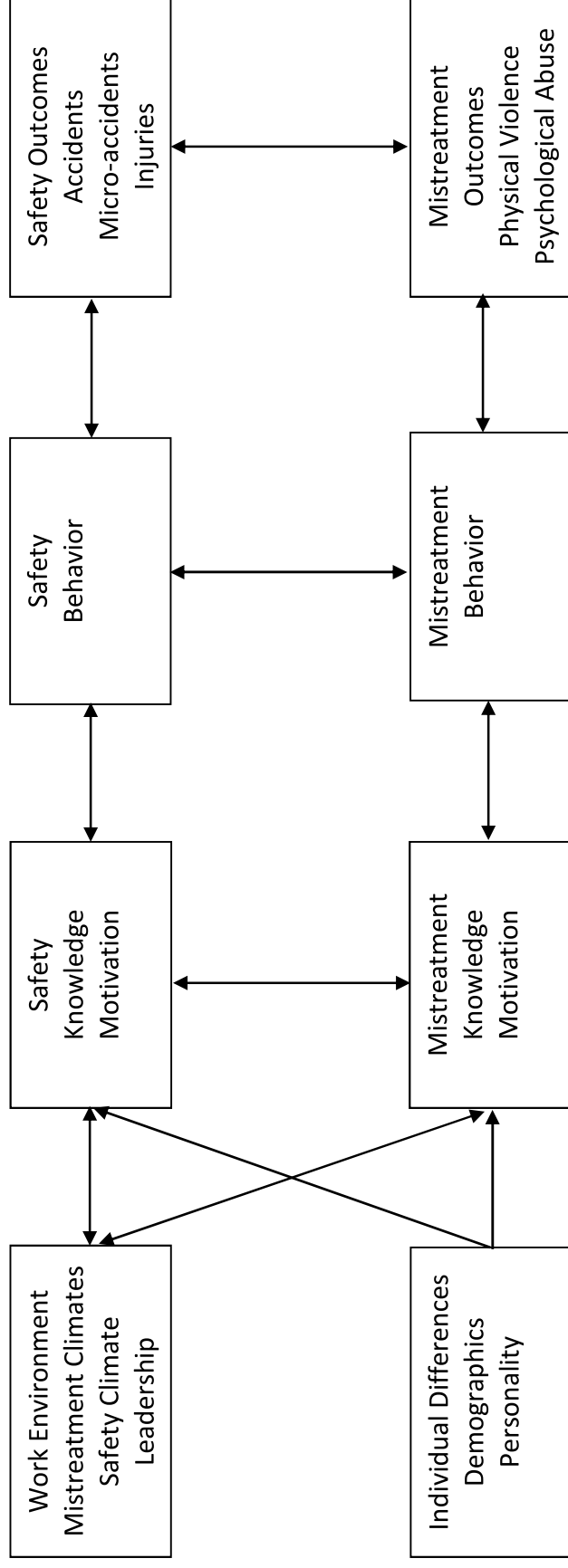


Table 1
Meta-Analytic Estimates of Relationships of Climate and Leadership with Safety and Mistreatment Outcomes

Outcomes	Safety Climate				Mistreatment Climate			
	Meta-Analysis	n	K	p	Meta-Analysis	n	K	p
Domain Specific Motivation	Christian et al., 2009	849	3	0.46	Yang et al., 2014	1,463	5	0.51
Domain Specific Performance	Christian et al., 2009	15,327	31	0.49	Yang et al., 2014	1,377	5	0.50
Job Satisfaction	Narhgang et al., 2011	22,367	23	0.70	Yang et al., 2014	9,536	23	0.52
Physical Demands	Narhgang et al., 2011	31,924	44	-0.48	-	-	-	-
Physical Strains	-	-	-	-	Yang et al., 2014	4,106	15	-0.25
Emotional Strains	-	-	-	-	Yang et al., 2014	4,777	20	-0.33
Burnout	Narhgang et al., 2011	10,049	18	-0.37	-	-	-	-
Accidents and Injuries	Narhgang et al., 2011	19,295	45	-0.24	-	-	-	-
Mistreatment Exposure	-	-	-	-	Yang et al., 2014	13,195	28	-0.30
Outcomes	Transformational Leadership				Effective Leadership			
	Meta-Analysis	n	K	p	Meta-Analysis	n	K	p
Safety Climate	Clarke, 2013	5,208	20	0.48	Narhgang et al., 2011	29,114	53	0.69
Safety Compliance	Clarke, 2013	4,006	10	0.31	Narhgang et al., 2011	13,954	22	0.59
Safety Participation	Clarke, 2013	2,871	12	0.44	-	-	-	-

Table 2

Meta-Analytic Estimates of Individual Difference–Safety Performance Relationships

Personality Trait	Meta Analysis	N	K	ρ
Conscientiousness	Christian et al., 2009	1,317	5	0.18
Locus of Control	Christian et al., 2009	2,858	9	0.35
Risk Taking	Christian et al., 2009	1,173	4	-0.28
Promotion Focus	Lanaj et al., 2012	1,280	6	-0.15
Prevention Focus	Lanaj et al., 2012	1,280	6	0.51

Table 3

Meta-Analytic Estimates of Individual Difference–Accident/Injury Relationships

Personality Trait	Meta Analysis	N	K	ρ
Conscientiousness	Christian et al., 2009	852	4	-0.26
	Salgado, 2002*	2094	6	0.06
	Clarke & Robertson, 2005 [^]	1125	9	-0.30
	Clarke & Robertson, 2008 [^]	1290	10	-0.31
Emotional Stability	Christian et al., 2009	5,129	12	-0.19
	Clarke & Robertson, 2005	1,958	13	-0.28
	Clarke & Robertson, 2008	1934	13	-0.30
	Kaplan et al., 2009	759	3	-0.20
	Salgado, 2002* [^]	2121	5	0.08
Extraversion	Christian et al., 2009	2083	5	-0.07
	Clarke & Robertson, 2005	1524	12	-0.09
	Clarke & Robertson, 2008	2137	16	0.02
	Salgado, 2002*	2341	7	0.04
Openness to Experience	Clarke & Robertson, 2005	570	7	0.50
	Clarke & Robertson, 2008	570	7	0.50
	Salgado, 2002*	1660	5	-0.09
Agreeableness	Salgado, 2002*	1540	4	0.01
	Clarke & Robertson, 2005 [^]	420	7	-0.61
	Clarke & Robertson, 2008 [^]	715	8	-0.44
Locus of Control	Christian et al., 2009	2446	4	-0.26
Risk Taking	Christian et al., 2009	820	3	0.20

Table 4

Meta-Analytic Estimates of Individual Difference–Mistreatment Relationships

Personality Trait	Meta Analysis	N	K	ρ
Victim Positive Affectivity	Bowling & Beehr (2006)	2,293	8	-0.09
Victim Negative Affectivity	Bowling & Beehr (2006)	7,441	24	0.25
Victim Gender	Bowling & Beehr (2006)	2,921	11	-0.05
Victim Age	Bowling & Beehr (2006)	4822	16	-0.04
Perpetrator Trait Anger	Hershcovis et al. (2007)	2648	10	0.43
Perpetrator Negative Affectivity	Hershcovis et al. (2007)	1532	5	0.29
Perpetrator Gender	Hershcovis et al. (2007)	3653	14	-0.21
	Berry et al. (2007)	6250	14	0.15
Perpetrator Age	Berry et al. (2007)	6249	14	-0.06
Perpetrator Emotional Stability	Berry et al. (2007)	2842	10	-0.24
Perpetrator Extraversion	Berry et al. (2007)	2360	8	0.02
Perpetrator Openness	Berry et al. (2007)	2360	8	-0.09
Perpetrator Agreeableness	Berry et al. (2007)	3336	10	-0.46
Perpetrator Conscientiousness	Berry et al. (2007)	3458	11	-0.23

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