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Aggression-Preventive Supervisor Behavior: Implications for Workplace Climate and Employee Outcomes

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Workplace aggression remains a serious and costly issue for organizations; thus, it is imperative to understand ways to reduce workplace aggression. To address this need, we used 2 independent samples with varied study designs, one at the employee level and the other at both employee and unit levels, to examine the role of aggression-preventive supervisor behavior (APSB) in aggression-prevention processes. In Sample 1 (237 nurses), we used structural equation modeling to examine the role of individual observations of APSB. First, we found that individual employees' observations of APSB positively related to their individual violence-prevention climate (VPC) perceptions. Further, VPC perceptions mediated the relations between APSB and employees' exposure to coworker aggression, job attitudes, and physical symptoms. In Sample 2 (337 nurses), we used multilevel regression analysis to examine the positive role of APSB in managing the aggression process. First, we established further support for many of the findings in Sample 1. In addition, we found that shared unit-level VPC mediated the relations of unit-level APSB with employees' exposure to aggression from coworkers, their physical symptoms, and turnover intention. Finally, evidence from Sample 2 supported favorable, direct relations of individual- or unit-level APSB with employees' aggression-prevention compliance and turnover intention. Implications for studying context-specific leadership behavior and designing aggression-prevention interventions are discussed.

Keywords: aggression prevention, coworker aggression, supervisor behavior, violence-prevention climate

Defined as overt physical or nonphysical behavior that harms others at work (e.g., yelling or pushing; Neuman & Baron, 2005), workplace aggression has been shown to be one of the most prevalent and consequential types of interpersonal mistreatment (Hershcovis & Barling, 2010). A national survey of United States workers showed that in the prior year 41% of employees reported exposure to nonphysical aggression and 6% reported exposure to physical aggression (Schat, Frone, & Kelloway, 2006). Most studies conducted across different industries in North America and Europe have estimated a prevalence rate of 10–15% for employees' exposure to workplace bullying—a form of workplace aggression (e.g., Keashly & Jagatic, 2011; Zapf, Escartin, Einarsen, Hoel, & Vartia, 2011). Exposure to workplace aggression has been linked to adverse outcomes such as increased workers' compensation claims (Boyd, 1995), increased absenteeism (Glomb, 2002), and reduced productivity (Schat & Kelloway, 2003; Schat & Frone, 2011), resulting in an estimated annual cost of billions of dollars for U.S. companies (e.g., Gardner & Johnson, 2001; Pearson & Porath, 2005).

To date, research on the antecedents of workplace aggression has focused largely on the individual characteristics (e.g., personality) and personal job experiences (e.g., role conflict) of perpetrators and targets (Aquino & Thau, 2009; Barling, Dupre, & Kelloway, 2009). Additional research, however, has suggested that situational factors (e.g., organizational climate, leadership) also play an important role in employees' experiences of and reactions to workplace aggression, as well as other forms of mistreatment (Barling et al., 2009; Leiter, 2013; Yang, Caughlin, Gazica, Truxillo, & Spector, 2014). On the one hand, with respect to the roles of leaders or supervisors, prior workplace aggression literature has focused mainly on *negative* roles such as weak and indistinct leadership in relation to increased workplace conflicts and ultimately bullying (Aquino & Thau, 2009; Barling et al., 2009); this constitutes an important limitation in the literature. On the other hand, positive violence-prevention climate (VPC) has been linked to less employee aggression exposure and strains and better aggression-prevention efforts and job attitudes (e.g., Chang, Eatough, Spector, & Kessler, 2012; Kessler, Spector, Chang, & Parr, 2008), where VPC refers to individual (psychological climate) or shared (unit-level climate) perceptions of an organization's emphasis on eliminating aggression, as informed by policies, procedures, and practices. Thus, VPC represents a critical situational factor that contributes to our understanding of antecedents of aggression exposure and may be changed to better manage workplace aggression. However, little progress has been made toward understanding which factors contribute to the formation of VPC; this constitutes another important limitation in the literature.

Our present study is intended to address both of the aforementioned limitations in the literature by examining the potential *positive* roles that line supervisors may play in the context of reducing and preventing workplace aggression toward employees.

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Specifically, we study aggression-preventive supervisor behavior (APSB), defined as specific behaviors that line supervisors demonstrate to directly or indirectly help their employees prevent exposure to aggression (e.g., stepping in to resolve disputes between employees before they escalate into aggressive incidents). Consistent with the literatures on organizational climate (e.g., Glick, 1985) and the role of context—the latter of which posits the influence of social context on individuals' attitudes and behaviors (e.g., Johns, 2006)—we contend that APSB may exert positive contextual influence on employees' attitudes, motivation, and behavior toward the issues of aggression and its prevention through providing salient social contextual cues. Further, we contend that APSB may become a key antecedent of VPC perceptions through influencing employees' interpretations of organizational policies, procedures, and practices, and may predict downstream employee outcomes indirectly through shaping VPC perceptions.

To understand supervisors' positive role in shaping employees' VPC as well as downstream employee attitudes and behaviors including coworker aggression, we used two separate samples to examine whether: (a) APSB predicts employees' perceived VPC at both individual and unit levels; (b) through the mediation of individual- or unit-level VPC, APSB indirectly predicts key employee outcomes, including exposure to coworker aggression, aggression-prevention-related motivation and performance, job attitudes, and strains; and (c) indirect effects of APSB on employee outcomes persist after controlling for general supervisor support and safety-specific leadership, where the two covariates constitute two constructs that are potentially similar yet distinguishable from APSB.

This article contributes to the workplace aggression and organizational climate literatures in at least four ways. First, this article enhances our understanding of organizational climate specific to aggression prevention (i.e., VPC) by examining APSB as a proximal antecedent. Indeed, line supervisors may play a crucial role in disseminating aggression-prevention-related policies and procedures to employees and in shaping employees' VPC perceptions. As such, the present article extends past research that focused predominantly on the consequences of VPC (Yang et al., 2014). Second, consistent with similar efforts in the broader literature (e.g., service-oriented management practices [Schneider, Salvaggio, & Subirats, 2002]; safety-oriented supervisor practices or behavior [Griffin & Hu, 2013; Zohar & Luria, 2004]), this article highlights the importance of studying context-specific supervisor behavior by demonstrating the unique, indirect effects of APSB (via VPC) on important employee outcomes (e.g., exposure to coworker aggression, strains), incremental to the effects of general supervisor support and safety-specific leadership. In the context of managing complex workplace relationships (i.e., aggression from coworkers), such evidence can inform future research and interventions by demonstrating that supervisors' successful management of aggression incidents between their employees is contingent upon enacting behaviors that go above and beyond generally supportive or safety-focused leadership.

Third, this article focuses on aggression from coworkers, a prevalent and consequential source of workplace aggression (e.g., Chang & Lyons, 2012; Ortega, Høgh, Pejtersen, Feveile, & Olsen, 2009), and adds to the relatively limited body of literature on aggression from coworkers (Hershcovis & Barling, 2010) by enhancing our understanding of its antecedents. Specifically, because coworker relationships (including interpersonal aggression) are multilevel in nature, studying the role of supervisors' practices as well as that of workplace climate at both the individual and unit levels informs our understandings of the processes leading to coworker aggression and effective ways of managing this issue. Finally, our study provides an opportunity to integrate the consideration of context into the workplace aggression literature. Future theoretical development can be built on a multilevel framework by simultaneously taking into account contextual influences at different levels, including the roles of organizational policies and procedures, as well as supervisors' and peers' practices.

The Role of Context, APSB, and VPC

Recent organizational literatures have emphasized the importance of considering context in furthering understandings of organizational phenomena and advancing theoretical development (Johns, 2006; Rousseau & Fried, 2001). These literatures endorse the notion that individuals' beliefs, attitudes, and behaviors are motivated by the context in which they are situated, where context represents the location, time, and social environment in which individuals interact with others. According to the thesis on context (Johns, 2006), specifically contextual influences, employees form their beliefs and attitudes about their job based upon their perceptions and experiences of both physical and social environments at work, and they make decisions about priority of actions according to their interpretations of social cues from others around them. With respect to our focus on aggression-related processes, employees' beliefs and attitudes about the issue of workplace aggression and their actions to prioritize aggression prevention over other work goals can be influenced by the following two components: (a) their observations of social cues, such as how their colleagues (including supervisors) react to and handle this issue; and (b) their awareness of the environment, namely the organizational policies and infrastructure that target this issue.

The idea of contextual influence applies to our present study in that APSB corresponds to employee observations of aggression-related social cues whereas VPC corresponds to employees' awareness of the organizational environment including the resources available for aggression prevention. As defined earlier, APSB represents a direct supervisor's behaviors aimed at preventing aggression toward employees through helping them directly or indirectly. Examples of APSB include: describing policies available in the organization for preventing aggression incidents between employees (indirect help); stepping in to resolve disputes between employees before they escalate into aggressive incidents (direct help); or assigning an employee to work with coworkers with whom he or she gets along (indirect help). Such behaviors correspond to the range of supervisory interaction modes as specified by the U.S. Department of Labor (1991), namely helping-serving, monitoring-controlling, and instructing-guiding. Specifically, APSB reflects declarative, active, and proactive supervisory practices, and parallels the literatures on organizational learning (Argyris & Schon, 1996) and supervisor safety practices (Kelloway, Mullen, & Francis, 2006; Zohar & Luria, 2004, 2005). We contend that APSB extends past literature in three ways. First, APSB consists of specific supervisor behaviors aimed at managing workplace aggression, thereby reflecting effective ways of managing complex relationship dynamics at work. Second, APSB constitutes a collection of context-specific leadership practices, and thus, has the potential to provide

a more nuanced understanding of the specific supervisory actions that address workplace aggression. Third, APSB emphasizes a preventive perspective, which can be critical for shaping a positive, prevention-oriented organizational climate and further leading to effective reduction of aggression occurrences through employees' prevention efforts.

As one form of workplace climate, VPC represents employees' individual or shared perceptions of their organization's emphasis on reducing aggression (e.g., Kessler et al., 2008). It includes three dimensions: (a) organizational policies and procedures—those policies and procedures formally in place aimed at preventing aggression toward employees, (b) management practices and responses—those managerial practices aimed at reducing aggression and managerial actions in response to aggressive incidents, and (c) pressure for unsafe practices—the extent to which pressure to maximize work productivity inhibits aggression-prevention efforts.

APSB is related to yet distinct from VPC. APSB and VPC are related because they are both deeply influenced by existing organizational policies and procedures on aggression prevention, and both are focused on reducing employees' experiences of workplace aggression. We, however, contend that APSB and VPC are conceptually distinct in multiple ways. First, VPC represents employees' perceptions of organizational policies, procedures, and practices, and thus, it focuses on the organization or unit management as the entity. In contrast, APSB reflects supervisors' daily practices of helping-serving, monitoring-controlling, and instructing-guiding employees' efforts to prevent future aggression; thus, it is focused on the line supervisor(s) as the entity. Second, APSB reflects preventive practices and leadership behaviors explicitly demonstrated by line supervisors, whereas employees' VPC perceptions form gradually and are often implicitly based on the integration of information from different sources such as organizational-level policies and upper-level management responses to violence incidents. In other words, APSB represents concrete, observable leadership behavior, whereas VPC represents a global, unobservable perception that can only be inferred from various sources of information in the work environment. Lastly, APSB is distinct from the management practices and responses dimension of VPC because the former focuses on line supervisors' declarative, active, and proactive leadership behavior specifically aimed at aggression prevention, whereas the latter focuses on general norms that organizational management endorses regarding the provision of resources for aggression prevention (e.g., violence-prevention training) and on the manner in which management handles already occurring aggressive incidents (e.g., taking reports of violence seriously). Conceptually, APSB solely emphasizes prevention while VPC includes the aspects of both prevention and reaction (i.e., responses to aggressive incidents).

In line with the idea of contextual influence, frequent APSB provides strong social cues that aggression-prevention effort is expected and valued in the organization, and from these cues employees form their positive perceptions of VPC. That is, via APSB the line supervisor regularly communicates to employees about aggression-prevention policies and procedures, expediently monitors and attends to sensitive situations before they escalate into aggressive incidents, and effectively guides employees in the application of aggression-prevention strategies. Accordingly, frequent APSB can influence individual employees' interpretations of organizational policies and procedures, as well as their unique judgments of the organization's commitment to aggression prevention. Thus, we contend that frequent APSB contributes to individual employees' positive VPC perceptions by providing strong and clear social cues on the importance of aggression prevention. Indeed, the safety literature provides evidence for the influence of supervisors' safety-related behaviors on employees' unique safety climate perceptions (e.g., Barling, Loughlin, & Kelloway, 2002; Zohar & Luria, 2004). As such, we posit:

> *Hypothesis 1$_{ind}$:* Individual-level APSB positively predicts employees' individual perceptions of VPC.

APSB, VPC, and Employee Outcomes

Consistent with the idea of contextual influence (Johns, 2006; Rousseau & Fried, 2001), APSB reflects employees' observations of social cues from line supervisors, while VPC constitutes a psychosocial context where employees construe their experiences of aggression from coworkers, form attitudes toward their job, and choose actions pertaining to the issue of preventing aggression. Thus, we view VPC as employees' awareness and interpretations of the work context (e.g., policies and resources on deterring aggression), which should further shape employees' reactions, attitudes, and behaviors toward the issue of aggression. Specifically, when VPC perceptions are positive, employees are aware of aggression-related policies and procedures, and other available resources such as training programs or management support. Employees' awareness of and access to such available organizational resources should directly contribute to their reduced exposure to aggression, as well as reduced emotional and physical strains owing to diminished uncertainty related to handling aggressive incidents. Consistent with Vroom's (1964) expectancy theory, we contend that employees' motivation to make aggression-prevention efforts is heightened when employees believe their immediate work environment provides policies, procedures, and practices aimed at aggression prevention. That is, awareness of these resources at work increases employees' self-efficacy to handle or prevent aggression toward themselves and/or coworkers (i.e., expectancy that their effort will lead to the desired prevention behavior), their belief that such actions will get rewarded by management (i.e., recognizing the instrumentality of performing the prevention behavior to achieve an outcome), and their understanding that the outcomes of aggression-prevention efforts will benefit themselves and the entire work group (i.e., perceived value of the outcome itself such as a reduced rate of aggression between employees). Thus, positive VPC should be associated with employees' strong aggression-prevention motivation and performance, such as complying with prevention policies and participating in prevention initiatives (e.g., Chang et al., 2012). Finally, because positive VPC conveys a message that the organization and management place aggression prevention (and employee well-being at large) as high a priority as meeting other work goals, we expect that positive VPC should contribute to employees' positive attitudes toward management and their job as a whole, which include higher satisfaction with management, higher job satisfaction, and lower turnover intention.

In contrast, when experiencing negative VPC in their immediate work environment, employees tend to have inadequate awareness of available aggression-prevention policies and procedures and/or

little access to important prevention resources (e.g., organizational training programs). Subsequently, they may experience more strains, demonstrate more negative attitudes toward management and their job, and tend to be less ready and less motivated to prevent such aggressive incidents. That is, owing to the low readiness for handling aggression and high uncertainty of successful prevention, employees may experience more emotional and physical strains. Because of inadequate awareness of and/or little access to aggression-prevention resources, these employees may become more vulnerable to aggressive incidents. In addition, they may be less motivated to take preventive actions because of lower efficacy in preventing aggression toward themselves and/or coworkers, lower perceived prospect of their preventive actions leading to positive outcomes like improved work relationships with coworkers, and poorer understanding of benefits that such outcomes could bring about. Similarly, with weak beliefs that their aggression-prevention efforts are supported and rewarded in the work environment, employees may be less likely to comply with aggression-prevention policies and procedures or to participate in prevention initiatives. Finally, we contend that employees experiencing negative VPC are also likely to be dissatisfied with management or their job as a whole and to develop intentions to quit because they perceive that the organization assigns a low priority to aggression prevention and employee well-being in general.

Indeed, prior research demonstrates support for the links between VPC and aggression exposure, aggression-prevention motivation, aggression-prevention performance, job attitudes, and strains. Specifically, prior research using cross-sectional and longitudinal designs found that positive VPC is associated with lower aggression exposure and fewer emotional and physical strains, such as fear of violence and psychosomatic symptoms (e.g., Mueller & Tschan, 2011; Spector, Yang, & Zhou, 2015; Yang, Spector, Chang, Gallant-Roman, & Powell, 2012). Positive VPC has also been linked to favorable job attitudes such as higher job satisfaction and lower turnover intention (e.g., Chang et al., 2012; Kessler et al., 2008). Finally, prior evidence supports the positive links between VPC and employee aggression-prevention motivation and performance including aggression prevention compliance and participation (e.g., Chang et al., 2012; Gazica & Spector, 2013). Together, these findings highlight the importance of VPC in managing the aggression process.

Given our earlier rationale concerning the link between APSB and VPC and the aforementioned role of VPC in managing the aggression process, we posit that individual observations of APSB will influence focal employee outcomes indirectly through individual VPC perceptions. This proposition is consistent with the idea of contextual influence because APSB represents salient social cues that employees observe from interacting with their direct supervisor(s). Employees then draw upon such observations (i.e., contextual cues) to interpret the organization's priority regarding aggression prevention as compared with other work goals. Understanding the priority of aggression prevention (e.g., perceived VPC) helps to shape employees work attitudes, to manage their strains, and to guide their behaviors pertaining to aggression prevention and their job as a whole.

Hypothesis 2$_{ind}$: Employees' individual perceptions of VPC mediate the relations of individual-level APSB with (a) employees' exposure to coworker aggression, (b) job attitudes (e.g., job satisfaction), (c) strains (e.g., physical symptoms), (d) aggression-prevention motivation, and (e) aggression-prevention performance (compliance and participation).

APSB and VPC as Unit-Level Constructs and Processes

Consistent with past literature on common supervisor leadership practices and shared organizational climate at the unit level (e.g., Schneider et al., 2002; Zohar & Luria, 2004), we contend that APSB and VPC also operate at the unit level. Specifically, as they interact with each other on a daily basis, employees in the same work unit (e.g., group, department) observe and discuss their respective supervisors' APSB, and gradually form consensus about the frequencies of APSB in their respective unit. Through this process of experiencing common APSBs in the unit, employees interpret the corresponding social cues and collectively make sense of the relative priority of aggression prevention in their unit. In other words, when employees in the same unit observe frequent and similar managerial actions in support of aggression prevention (e.g., supervisors frequently demonstrate APSB across many situations), they come to a shared understanding that aggression prevention is a relatively high priority. As such, frequent APSB that is regularly observed by employees in the same unit should facilitate shared VPC perceptions among employees. In contrast, the opposite might occur in units with infrequent managerial preventive actions. Indeed, the safety literature provides evidence for the influence of unit-level line supervisors' practices on employees' shared safety climate perceptions (e.g., Zohar & Luria, 2004). Further, according to the literatures on contextual influence and shared VPC (e.g., Chang et al., 2012; Johns, 2006), unit-level VPC represents shared psychosocial context that motivates employees' attitudes toward aggression and their effectiveness in preventing aggression, as well as supports their well-being via providing resources to cope with strains. Thus, we contend that shared unit-level VPC will mediate the relations between unit-level APSB and focal outcomes. In summary, it is crucial for us to examine the focal research question in a multilevel setting because our focal phenomenon of coworker aggression is multilevel in nature and it can only be addressed by taking into account unit-level influences (e.g., APSB and VPC).

Hypothesis 1$_{unit}$: Unit-level APSB positively predicts employees' shared perceptions of VPC.

Hypothesis 2$_{unit}$: Employees' shared perceptions of VPC mediate the relations of unit-level APSB with (a) employees' exposure to coworker aggression, (b) job attitudes, (c) strains, (d) aggression-prevention motivation, and (e) aggression-prevention performance.

Distinguishing APSB From General Supervisor Support and Safety-Specific Leadership

One may argue that APSB constitutes a form of supervisor support, as supervisors' preventive behaviors indicate an emphasis on protecting employees from a hostile work environment (e.g., employees behaving aggressively toward each other). In other words, supervisors' APSB could be perceived as showing concerns for employees' well-being, thereby conceptually overlapping with

general supervisor support (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002). Prior literature has shown that general supervisor support and closely related variables, such as social support, favorably relate to employee strains, job attitudes, safety performance, and aggression occurrences (Boswell & Olson-Buchanan, 2004; Maertz, Griffeth, Campbell, & Allen, 2007; Nahrgang, Morgeson, & Hofmann, 2011; Ng & Sorensen, 2008). Thus, to establish the unique role played by APSB in aggression processes, it is important to examine whether the effects of APSB are incremental to the effects of general supervisor support on the aforementioned employee outcomes. Indeed, in the related field of work-family interface, meta-analytical evidence indicates that family supportive supervisor behavior predicts work-family conflict over and above general supervisor support (Kossek, Pichler, Bodner, & Hammer, 2011).

In addition, it is important to differentiate APSB from safety-specific leadership. Safety-specific leadership concerns leadership behaviors that focus on employee safety (Barling et al., 2002). It has been shown to favorably relate to various employee outcomes such as safety performance, injuries, job attitudes, and strains (e.g., Barling et al., 2002; Clarke, 2013; Eatough, Way, & Chang, 2012; Wang & Yen, 2015). Conceptually, APSB represents supervisor behaviors specific to the context of aggression prevention and, therefore, somewhat relates to safety processes and safety-specific leadership, particularly in cases where preventing aggression may help prevent injuries resulting from physical aggression. However, we contend that APSB is distinguishable from safety-specific leadership behaviors in that APSB involves managing complex working relationships (i.e., aggression between employees as in the case of our study) and goes beyond the safety focus entailed by safety-specific leadership. As such, we examine whether the indirect effects of APSB on employee outcomes hold after controlling for the effects of general supervisor support and safety-specific leadership on outcomes.

Hypothesis 3$_{ind}$: The mediational effects of employees' individual VPC perceptions on the relations of individual-level APSB with (a) employees' exposure to coworker aggression, (b) job attitudes, (c) strains, (d) aggression-prevention motivation, and (e) aggression-prevention performance, will remain significant after controlling for the effects of general supervisor support on the aforementioned outcomes.

Hypothesis 4$_{ind}$: The mediational effects of employees' individual VPC perceptions on the relations of individual-level APSB with (a) employees' exposure to coworker aggression, (b) job attitudes, (c) strains, (d) aggression-prevention motivation, and (e) aggression-prevention performance, will remain significant after controlling for the effects of safety-specific leadership on the aforementioned outcomes.

The Present Study

To ensure study rigor, we tested hypotheses focused on individual-level APSB and VPC in both Samples 1 and 2 (whenever appropriate), and tested hypotheses involving unit-level APSB and VPC only in Sample 2. Because in some cases we operationalize the same constructs somewhat differently across Samples 1 and 2 to reduce mono-operation bias (Shadish, Cook, & Campbell, 2002), we use Figure 1 to illustrate our conceptual model and all utilized variables. For example, job attitudes were operationalized as satisfaction with management, job satisfaction, and turnover intention in Sample 1, and as only job satisfaction and turnover intention in Sample 2. In summary, Samples 1 and 2 complemented each other because they allowed for different study designs (individual- and multi-level), a test of convergence in study findings, and an assessment of a more comprehensive list of outcome variables.

It is important to note that our study focuses on the aggression target's perspective for two considerations. First, compared with the amount of research conducted from the perpetrator's perspective (Barling et al., 2009; Hershcovis et al., 2007), more work is needed to examine the organizational contextual factors like organizational culture or climate that could mitigate and, in particular, prevent aggression from the target's perspective (e.g., Bowling & Beehr, 2006; Yang et al., 2014). Second, efforts to prevent and reduce workplace aggression may be more effective when initiated with the target in mind (as opposed to the perpetrator), mainly because of the reality that the aggression target often feels more inclined to report aggression incidents and more motivated to prevent and reduce future incidents (De Cuyper, Baillien, & De Witte, 2009).

Further, our present study focuses on health care workers for two reasons. First, aggression from coworkers in health care settings—namely lateral violence—has been found to be very prevalent and consequential (Spector, Zhou, & Che, 2014; Vessey, Demarco, & Difazio, 2010). For example, Spector and colleagues' (2014) review of 136 studies suggest that 3.2% to 44.8% of nurses reported experiences of physical and/or nonphysical aggression

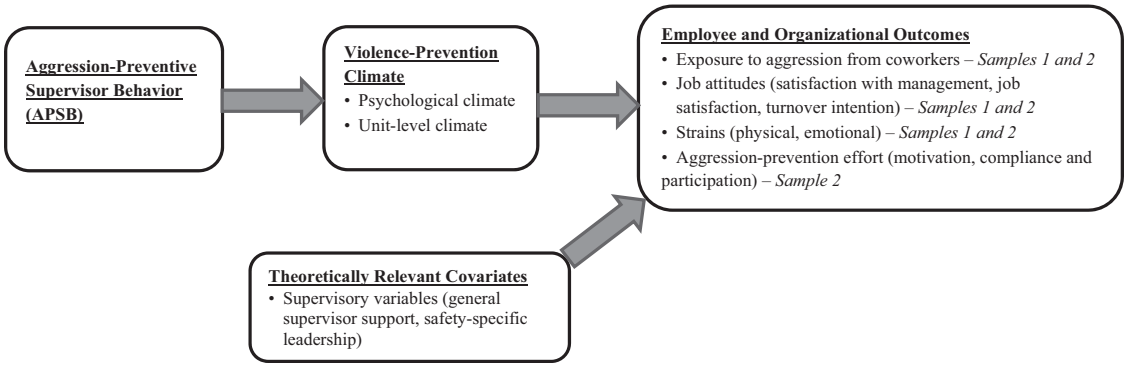

Figure 1. Conceptual model of APSB, VPC, and presumed outcomes.

from their coworkers. Further, aggression from fellow health care workers has been found to account for important outcomes such as medical errors, employee turnover and even suicide (Farrell, 1997; McMillan, 1995; Vessey et al., 2010). Thus, it is imperative to examine factors that may reduce or prevent such occurrences of aggression. Second, the topic of aggression-related organizational climate (e.g., policies and procedures) and supervisory practices seems to be more commonly recognized and researched in health care settings than in other industries. Indeed, we identified only one intervention-based study aimed at changing mistreatment-related organizational climate, and it used a health care sample (Leiter, Day, Oore, & Spence Laschinger, & 2012; Leiter, Laschinger, Day, & Oore, 2011). Further, a secondary analysis of data from a recent meta-analytical review on mistreatment-related climate (i.e., Yang et al., 2014) indicated that 43% of the included primary studies used health care samples.

Method

Participants and Procedure

Sample 1. A sample of 237 nurses from the west coast of the United States participated in the study. Participants were predominantly women (92.8%) and White (91.3%), and most participants worked primarily in hospitals or acute care facilities (85.0%). On average, participants were 47.64 (SD = 10.55) years old, worked 37.10 (SD = 9.95) hours per week, and had an organization tenure of 12.48 (SD = 11.64) years. Finally, participants worked in a variety of specialty areas such as emergency, family nursing, obstetrics, operating room, and critical care. We recruited nurses at two nursing conventions on the West coast of the United States by asking them to participate in an anonymous survey study focused on occupational health and safety. Interested individuals were told that their responses to the survey (via hardcopy or online) would help inform research and practices in health care, and that upon participating they could enter a voluntary raffle to win one of three tablet computers.

Sample 2. Participants included 337 registered nurses from 48 units nested in eight organizational facilities, with 2–17 nurses per unit. Among them, 285 (84.6%) were staff nurses, and the rest held positions like nursing practitioner or clinical nurse specialist. On average, they were 41.82 (SD = 11.72) years old, worked 34.58 (SD = 6.10) hours per week, and had an organizational tenure of 9.59 (SD = 8.59) years. We recruited participants from a health care organization on the West coast of the United States to voluntarily participate in a confidential research survey. No monetary incentives were used for participant recruitment; however, potential participants were given the option to participate during paid work hours. The survey (hardcopy and online) was available for 6 weeks and a reminder was sent every other week. As the study announcement was distributed via the internal email listserv of the organization, we were not able to calculate an exact response rate for our survey. Nurses were matched to their respective facility/unit based upon their self-reported facility/unit membership.

Measures

Aggression-preventive supervisor behavior (ASPB). To measure APSB against aggression from coworkers, the authors developed and validated a new 9-item measure that reflects declarative, active, and proactive supervisory practices (as described in the Appendix). In Sample 1, the APSB scale was reliable (α = .93). Sample items are: My direct supervisor "describes policies available in the organization for preventing aggression incidents between employees," "encourages me to update him/her regarding signs of potential coworker-initiated aggression," and "assigns me to work with coworkers whom I get along with." Participants responded using a 5-point frequency scale (1 = *never* to 5 = *every day*). In Sample 2, we used the same 9-item APSB measure (α = .96) as in Sample 1. When applicable, the wording of the items was adapted slightly to reflect the construct of unit-level APSB. For example, the aforementioned second sample item becomes: "My direct supervisor encourages *us* (vs. *me*) to update him/her regarding signs of potential coworker-initiated aggression." In the validation study (described in the Appendix), APSB was shown to underlie the declarative, active, and proactive components of supervisor behavior; as such, we calculated overall APSB scale scores for hypothesis testing across both samples.

Violence-prevention climate (VPC). In Sample 1, we assessed VPC with Kessler et al.'s (2008) shortened, 12-item Violence-Prevention Climate scale (overall α = .91). Each of the following three dimensions had four items: management practices and responses (α = .93), organizational policies and procedures (α = .94), and pressure for unsafe practices (α = .83). An example item from the management practices and responses dimension is: "Reports of workplace violence from other employees are taken seriously by management." Participants responded using a 6-point agreement scale (1 = *strongly disagree* to 6 = *strong agree*). Confirmatory factor analyses (CFAs) suggested that a model with items loaded on their respective VPC dimensions had a similar level of fit when compared with a model with the three underlying VPC dimensions loaded on a second-order VPC factor ($\chi^2_{(18)}$ = 55.29, comparative fit index [CFI] = .97, root mean square error of approximation [RMSEA] = .10, standardized root-mean-square residual [SRMR] = .05). Given the moderate-to-high interfactor correlations ($.44 \leq r \leq .66$) and moderate-to-high loadings of the three dimensions on the overall VPC ($.47 \leq \gamma \leq .88$), we endorsed a superordinate VPC dimension (Law, Wong, & Mobley, 1999). Thus, overall VPC scale scores were used for hypothesis testing. Consistent with Sample 1, in Sample 2 we used the same 12-item VPC scale (α = .91), and calculated overall scale scores of VPC for hypothesis testing.

Aggression from coworkers. In Sample 1, we assessed aggression from coworkers using a 7-item physical aggression measure (α = .82; Yang et al., 2012) and a 5-item psychological aggression measure (α = .84; Chang et al., 2012). A sample item for psychological (vs. physical) aggression is: "How often have you been insulted (vs. pushed, grabbed, or shoved) by your coworkers (technicians, CNAs, or other nurses) in the past 6 months?" Participants responded using a 6-point frequency scale (1 = *never* to 6 = *daily*). In Sample 2, we assessed psychological aggression over the prior 6 months using the same Chang et al. (2012) scale (α = .85), but did not assess physical aggression due to survey length limitations and a low prevalence rate of physical aggression from coworkers in the participating organization.

Job attitudes. We had three attitude variables across the two samples. Job satisfaction was assessed by Cammann, Fichman, Jenkins, and Klesh's (1979) 3-item measure in both Sam-

ple 1 ($\alpha = .86$) and Sample 2 ($\alpha = .88$). A sample item is: "In general, I like working here." Turnover intention was assessed using three items adapted from Cammann et al.'s (1979) measure (Yang, Che, & Spector, 2008) in both Sample 1 ($\alpha = .93$) and Sample 2 ($\alpha = .89$). A sample item is: "I often think of leaving this organization." Management satisfaction was assessed with Johnson, Selenta, and Lord's (2006) 3-item measure in Sample 1 ($\alpha = .82$). A sample item is: "I generally support the decisions of management in my organization." All the job attitude items used a 7-point agreement scale (1 = *strongly disagree* to 7 = *strongly agree*).

Physical and emotional strains. We included two strain variables across the two samples. Physical symptoms were assessed by the 13- and 10-item Physical Symptoms scale (Spector & Jex, 1998) using a 5-point frequency scale (1 = *less than once per month or never* to 5 = *several times per day*) in Sample 1 ($\alpha = .86$) and Sample 2 ($\alpha = .83$), respectively. Because of survey length limitations, we omitted three items[1] in the survey of Sample 2 based on item analyses using published datasets (Spector & Jex, 1998; Yang et al., 2012). A sample item is: "I have had a headache." Emotional exhaustion was assessed using the 3-item subscale of Shirom and Melamed's (2006) Burnout scale in Sample 2 ($\alpha = .90$). A sample item is: "I have been unable to be sympathetic to coworkers and patients." Participants responded using a 5-point frequency scale (1 = *not at all* to 5 = *every day*).

Aggression-prevention effort. We measured three relevant aggression-prevention effort variables in Sample 2. Aggression-prevention motivation was assessed using Chang et al.'s (2012) 6-item measure ($\alpha = .90$). An example item is: "I am motivated to try to stop violent incidents at work." Aggression-prevention performance was assessed using a shortened 7-item measure by Chang et al. (2012) which included aggression-prevention compliance (four items; $\alpha = .82$) and participation (three items; $\alpha = .71$) subscales. Respective example items were "I follow the correct aggression prevention procedures when carrying out my job" and "I willingly offer to help others by teaching them necessary knowledge or skills related to aggression prevention." We chose these seven items because they had the highest factor loadings on underlying constructs based on a factor analysis of Chang et al.'s published dataset. Participants responded to all the above 13 items using a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*).

Theoretically relevant covariates. General supervisor support was assessed with Yoon and Lim's (1999) 3-item measure in Sample 1 ($\alpha = .78$). An example item is: "My direct supervisor can be relied upon when things get tough at my job." Participants responded using a 6-point agreement scale (1 = *strongly disagree* to 6 = *strong agree*). Safety-specific leadership was assessed by safety-specific leadership using Barling et al.'s (2002) 10-item scale in Sample 2 ($\alpha = .96$). This scale includes adapted items assessing the contingent reward component of transactional leadership and all four components of transformational leadership (i.e., idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration). A sample item is: "My direct supervisor talks about his/her values and beliefs about the importance of safety." Participants responded using a 5-point frequency scale (1 = *never* to 5 = *every day*).

Analytical Strategies

Considering the different characteristics of the two samples, we used different analytical strategies to test hypotheses. Sample 1 includes participants from diverse organizations and is focused on the individual level. We used structural equation modeling (SEM) to obtain maximum likelihood estimations of the relations between APSB, VPC, and multiple outcomes simultaneously, while controlling for measurement errors inherent in the scales used. In contrast, the multilevel nature of Sample 2 allows for the separation of unit-level variance from individual-level variance. Therefore, we used multilevel random effects modeling to obtain maximum-likelihood estimates of individual-level, unit-level, and cross-level relations. Mplus 5.21 was used to run all the analyses. Specifically, to test Hypotheses 1_{ind} and 2_{ind} with SEM in Sample 1, we specified all multi-item variables as latent variables underlying scores on corresponding items, subscales, or multi-item parcels (Hall, Snell, & Foust, 1999); we also specified that APSB predicts outcomes only through the mediation of VPC (full mediation). In addition to the full mediation model described above (see Figure 2), we ran two alternative models: (a) a partial mediation model in which the direct paths between APSB and outcomes were added, and (b) a nonmediation model in which the APSB-VPC path was removed and the direct paths between APSB and focal outcomes were added. Finally, to test Hypothesis 3_{ind} with Sample 1, we ran the three aforementioned SEM models while controlling for the effect of general supervisor support on outcomes given the rationale discussed earlier.

While running multilevel random effects modeling with Sample 2, we focused on the outcome variables one at a time, and were able to test individual-level ($H1_{ind}$ and $H2_{ind}$), unit-level ($H1_{unit}$), and cross-level hypotheses ($H2_{unit}$). To justify the aggregation of APSB and VPC to the unit level, we calculated their respective aggregation indices: Intraclass correlations (ICC1) were .07 and .14; reliabilities of the unit-level mean (ICC2) were .41 and .47; and median $r_{wg(j)}$ values were .73 and .56. The fact that not all ICC2 and $r_{wg(j)}$ values were higher than recommended threshold of .70 (James, 1982; James, Demaree, & Wolf, 1993) was most likely because of small unit sizes in our sample (2–17 nurses per unit). Nonetheless, the variables' ICC1 levels were acceptable (James, 1982). Thus, APSB and VPC were aggregated to test unit-level and cross-level hypotheses. Further, consistent with the literature on multilevel mediational modeling (Preacher, Zyphur, & Zhang, 2010), we focused on two-level models (employee-Level 1, unit-Level 2), after finding nonsignificant variance components at Level 3 (facility-level) for all outcome variables in three-level baseline models.

Results

APSB, VPC, and Employee Outcomes

Hypothesis 1 posited that APSB positively predicts VPC. Hypothesis 1_{ind} was supported by data from both samples. Table 1 shows that in Sample 1 APSB was significantly and positively

[1] In Sample 1, the correlation between the 13- and 10-item scales was .98, $p < .01$.

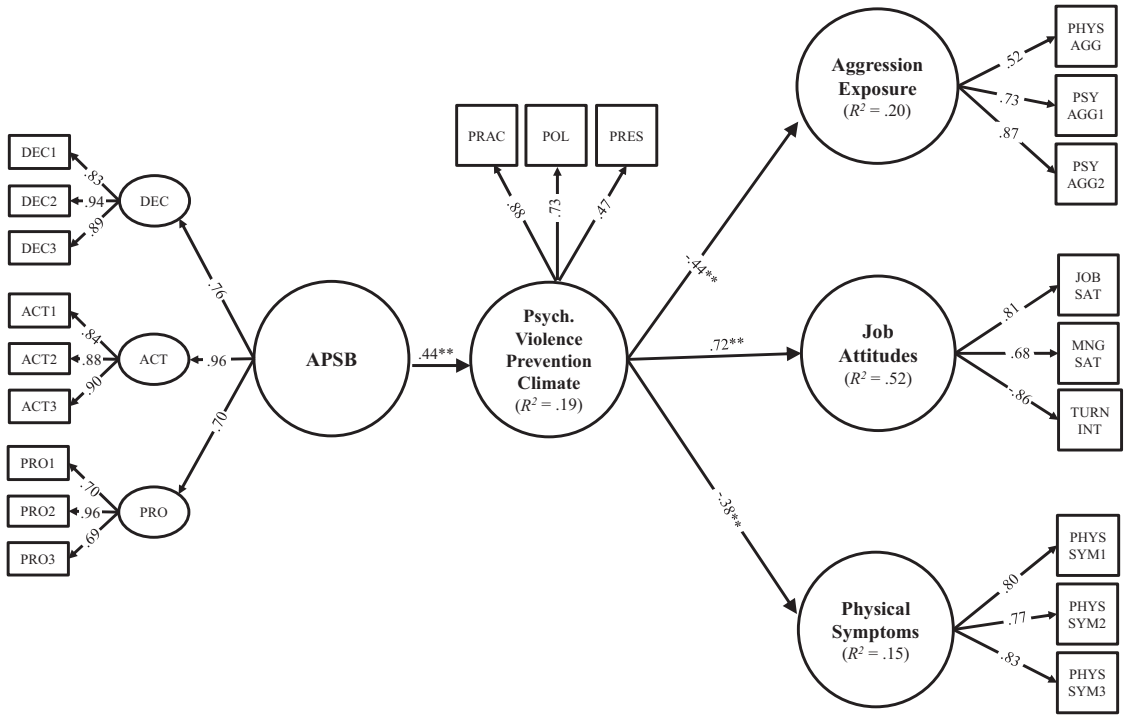

Figure 2. Structural equation model of the relations between APSB, VPC, and outcomes, without covariate (Sample 1). All factor loadings in the measurement models are significantly different from zero. ** $p < .01$.

related to VPC, $r = .38$, $p < .01$, which is consistent with the path in the SEM model ($\beta = .44$, $p < .01$; Figure 2). Table 2 shows that in Sample 2 APSB was significantly and positively related to VPC perceptions at the individual level (pooled within-unit $r = .22$, $p < .01$). Hypothesis 1_{unit} was supported by data from Sample 2 because the unit-level correlation between APSB and VPC was positive and significant, $r = .34$, $p < .01$, as shown in Table 2.

Hypothesis 2 posited indirect effects of APSB on outcomes. Hypothesis 2_{ind} was supported by data from both samples. As shown in Figure 2 (Sample 1), the SEM model that specified the full mediation of VPC in the APSB-outcome relations demonstrated adequate fit ($\chi^2_{(179)} = 272.50$, CFI = .96, RMSEA = .05, SRMR = .06), and all path coefficients were significant ($.38 \leq |\beta| \leq .72$). More important, this fully mediated model fit significantly better than the nonmediated model ($\Delta\chi^2 = 23.99$, $\Delta df = 2$, $p < .01$) and not significantly worse than the partially mediated model ($\Delta\chi^2 = 3.09$, $\Delta df = 3$, *ns*). We chose to accept the fully mediated model and reject the partially mediated model because none of the paths between APSB and focal outcomes were significant in the partially mediated model ($.00 \leq |\beta| \leq .14$), and the fully mediated model was more parsimonious than the partially mediated model. As shown in Table 3[2] (Sample 2), via the mediation of individual-level VPC, individual-level APSB had significant indirect effects on exposure to psychological aggression from coworkers ($b = -.06$, $p < .01$), employees' job attitudes—job satisfaction ($b = .19$, $p < .05$) and turnover intention ($b = -.25$, $p < .01$), strains—emotional exhaustion ($b = -.07$, $p < .01$) and physical symptoms ($b = -.06$, $p < .01$), aggression-prevention effort—motivation ($b = .07$, $p < .01$), participation ($b = .06$, $p < .01$), and compliance ($b = .07$, $p < .01$). That is, across both samples, individual perceptions of VPC mediated the relations between employee reports of APSB and various outcomes. Specifically, employees held more positive VPC perceptions when they worked with individual supervisors who enacted more frequent APSB aimed at deterring coworker aggression, and these positive VPC perceptions contributed to these employees' lower exposure to coworker aggression, better job attitudes (higher satisfaction with their job and management, lower turnover intention), fewer strains (emotional exhaustion and physical symptoms), and higher aggression-prevention effort, namely motivation and performance to prevent aggression (Sample 2 only).

Hypothesis 2_{unit} was partially supported by data from Sample 2. As shown in Table 4, via the mediation of unit-level VPC, unit-level APSB had significant indirect effects on individual-level employee exposure to coworker aggression ($b = -.19$, $p < .01$), turnover intention ($b = -.26$, $p < .01$), and physical symptoms ($b = -.07$, $p < .05$). That is, more frequent APSB observed by employees within the same units contributed to stronger unit-level VPC, which further contributed to fewer aggression occurrences from coworkers, lower turnover intention, and fewer physical symptoms as reported by employees in those units. With that said, none of the indirect effects of unit-level APSB on the other individual-level outcomes were significant. An interesting finding

[2] Given the nonsignificant estimates of the Level 2 residual variances corresponding to all slopes (e.g., Level 1 VPC predicts Level 1 job satisfaction), in Tables 3 and 4 we reported the fixed effects of focal Level 1 relations with pertinent Level 2 variance components fixed.

Table 1
Correlations Between Background and Focal Variables (Sample 1)

Variables	Mean	*SD*	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	—	—	—	—													
2. Age	47.64	10.54	—	.03	—												
3. Organizational tenure	12.48	11.64	—	.07	.44**	—											
4. Weekly work hours	18.13	11.97	—	.01	−.09	−.08	—										
5. Frequency of supervisory interaction	5.26	7.25	—	.09	−.08	−.04	.09	—									
6. General supervisor support	4.40	1.43	.78	.04	−.10	.01	−.14*	.21*	—								
7. APSB	1.62	.69	.93	−.01	−.12	−.03	.15	.34**	.39**	—							
8. Violence-prevention climate	4.07	1.15	.91	.08	−.01	.08	−.06	.14	.54**	.38**	—						
9. Coworker physical aggression	1.04	.19	.82	−.01	.01	−.02	.01	−.11	−.16*	−.10	−.16*	—					
10. Coworker psychological aggression	1.72	.86	.84	−.11	.15	.03	.10	−.05	−.28**	−.16*	−.34**	.48**	—				
11. Management satisfaction	3.76	1.36	.82	.01	−.09	.01	.11	.15	.40**	.32**	.61**	−.08	−.21**	—			
12. Job satisfaction	4.87	1.08	.86	.04	.06	.01	−.07	.10	.32**	.29**	.50**	−.07	−.24**	.35**	—		
13. Turnover intention	2.67	1.63	.93	−.08	−.07	−.13	.05	−.04	−.39**	−.23**	−.52**	.21**	.28**	−.27**	−.72**	—	
14. Physical symptoms	1.99	.64	.86	−.03	.01	.00	.08	−.03	−.28**	−.03	−.34**	.18*	.31**	−.03	−.31**	.40**	—

Note. $N = 237$. A dash (—) indicates not applicable. For gender, male and female were coded as 0 and 1, respectively. APSB = aggression-preventive supervisor behavior against aggression from coworkers.
* $p < .05$. ** $p < .01$.

Table 2
Correlations Between Background and Focal Variables (Sample 2)

Variables	Mean	*SD*	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Organizational tenure	9.34	8.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Weekly work hours	34.83	6.08	—	−.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3. Length of supervisory relationship	4.20	4.47	—	.45**	−.06	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Negative affectivity	1.89	.83	.85	−.10	.04	−.08	—	—	—	—	—	—	—	—	—	—	—	—
5. Safety-specific leadership	3.11	1.17	.96	.07	.00	.05	−.13*	—	—	—	—	—	—	—	—	—	—	—
6. APSB	2.00	.93	.96	−.07	−.02	.04	−.10	.63**	—	.34**	−.22	.10	.06	.08	.38**	−.52**	−.19	−.14
7. Violence-prevention climate	4.83	1.14	.91	.14*	−.10	.05	−.35**	.35**	.22**	—	−.53**	.19	.17	.24	.41**	−.56**	−.20	−.34**
8. Coworker aggression	1.57	.79	.85	.04	.13*	.03	.26**	−.10	.02	−.28**	—	−.02	.05	−.03	−.13	.27*	−.02	.12
9. Aggression-prevention motivation	5.96	.85	.90	.04	.00	−.07	−.05	.20**	.07	.28**	−.16*	—	.75**	.74**	.33**	−.23	−.12	−.07
10. Aggression-prevention participation	5.57	.83	.71	.12*	.04	−.05	−.11	.29**	.18*	.29**	.03	.56**	—	.93**	.36**	−.25*	−.15	−.18
11. Aggression-prevention compliance	5.54	.83	.82	.09	−.03	−.04	−.17*	.31**	.24**	.36**	−.01	.54**	.88**	—	.41**	−.29*	−.25*	−.19
12. Job satisfaction	5.35	1.32	.88	.07	−.07	−.01	−.34**	.30**	.18*	.51**	−.25**	.09	.11	.14*	—	−.71**	−.48**	−.51**
13. Turnover intention	3.62	1.78	.89	−.09	.10	−.01	.36**	−.22**	−.19**	−.49**	.21**	−.08	−.05	−.14*	−.71**	—	.28*	.33**
14. Emotional exhaustion	1.82	.81	.90	−.13*	−.03	.03	.51**	−.19**	−.15*	−.35**	.16*	−.04	−.12*	−.20**	−.41**	.36**	—	.46**
15. Physical symptoms	2.04	.62	.83	−.09	.13*	−.13*	.55**	−.11	.02	−.33**	.29**	−.08	−.02	−.11	−.27**	.34**	.39**	—

Note. $N = 337$. Values below the diagonal are values of pooled within-unit correlations; those above the diagonal are values of between unit correlations. A dash (—) indicates not applicable. APSB = aggression-preventive supervisor behavior against aggression from coworkers.
* $p < .05$. ** $p < .01$.

Table 3
Indirect Effects of Individual-Level APSB on Individual-Level Employee Outcomes Through Individual-Level VPC, Without Versus With Safety Leadership as a Covariate (Sample 2)

Independent variable	Mediator	Dependent variable	Residual direct effect	Indirect effect	Lower 95% CI	Upper 95% CI
APSBs-coworker	VPC	Exposure				
		Coworker aggression	.06 (.09)	$-.06^{**}$ ($-.06^{**}$)	$-.102$ ($-.107$)	$-.024$ ($-.017$)
		Job attitudes				
		Job satisfaction	$.13$ ($.07$)	$.19^{*}$ ($.16$)	$.029$ ($-.019$)	$.346$ ($.347$)
		Turnover intention	$-.22^{*}$ ($-.22$)	$-.25^{**}$ ($-.22^{**}$)	$-.366$ ($-.366$)	$-.124$ ($-.124$)
		Strains				
		Emotional exhaustion	$-.07$ ($-.07$)	$-.07^{**}$ ($-.07^{**}$)	$-.108$ ($-.102$)	$-.031$ ($-.030$)
		Physical symptoms	$.06$ ($.05$)	$-.06^{**}$ ($-.06^{**}$)	$-.097$ ($-.092$)	$-.031$ ($-.031$)
		Aggression prevention-effort				
		Aggression prevention-motivation	$-.02$ ($-.09$)	$.07^{**}$ ($.06^{*}$)	$.023$ ($.012$)	$.124$ ($.100$)
		Aggression prevention-participation	$.08$ ($.01$)	$.06^{**}$ ($.05^{**}$)	$.023$ ($.012$)	$.096$ ($.077$)
		Aggression prevention-compliance	$.13^{*}$ ($.08$)	$.07^{**}$ ($.06^{**}$)	$.029$ ($.019$)	$.117$ ($.097$)

Note. $N = 337$. Coefficients outside (inside) of the parentheses are from models without (with) safety leadership as a covariate. Unit nesting was taken into account in the mediational analysis. APSB = aggression-preventive supervisor behavior against aggression from coworkers; VPC = violence-prevention climate; CI = confidence interval. Values of the CI limits were rounded to three decimal places (instead of two) to better determine the focal effects' statistical significance (see prior practices such as Preacher & Hayes, 2004).
$^{*}p < .05$. $^{**}p < .01$.

was that unit-level APSB also had a significant residual direct effect on employees' turnover intention ($b = -.54$, $p < .05$), such that more frequent unit-level APSB was related to lower turnover intention. Thus, Hypothesis 2_{unit}(a) was fully supported, Hypotheses 2_{unit}(b) and 2_{unit}(c) were partially supported, and Hypotheses 2_{unit} (d) and 2_{unit}(e) were not supported.

Effects of APSB Incremental to Supervisor Support and Safety-Specific Leadership

Hypothesis 3_{ind} and Hypothesis 4_{ind} posited that the indirect effects of APSB on focal outcomes would remain robust after controlling for general supervisor support and safety-specific leadership as a covariate, respectively. Hypothesis 3_{ind} was supported by data from Sample 1. Specifically, the fully mediated SEM model with the effects of general supervisor support on outcomes controlled for had adequate fit ($\chi^2_{(237)} = 338.33$, CFI = .96, RMSEA = .04, SRMR = .06), with small and nonsignificant path coefficients for general supervisor support ($.09 \leq |\beta| \leq .16$) and all hypothesized path coefficients at a level very similar to those reported in Figure 2 (differences in a range of .02 to .11). This fully mediated model fit significantly better than the nonmediated model ($\Delta\chi^2 = 49.38$, $\Delta df = 2$, $p < .01$) and not significantly worse than the partially mediated model ($\Delta\chi^2 = 3.70$, $\Delta df = 3$, *ns*).

Hypothesis 4_{ind} was tested with data from Sample 2. Table 3 (inside of parentheses) presents the results of mediational analyses that controlled for safety-specific leadership—a theoretically relevant covariate. Specifically, the pattern of mediational results (the magnitude of effect sizes) remained essentially the same as those without the covariate (outside of parentheses), with one exception; that is, after safety-specific leadership[3] was added to the models, the significance level of one indirect effect changed from .05 to .10 for the model predicting job satisfaction. Thus, Hypotheses 4_{ind}(a)–(e) received full support except for one instance of nonsignificance.

It is also important to note that in Sample 2 all of the multilevel mediational analyses were based on all units with two or more respondents (48 units in total). Results from analyses based on units with three or more respondents (43 units in total) had a pattern very similar to those reported in Tables 3 and 4 with one exception. Namely, the indirect effect of unit-level APSB on turnover intention changed from being significant to nonsignificant ($p < .10$) when using the 43-unit sample with unit sizes of three or more. Such a change in the significance level was likely because of a difference in statistical power owing to a different number of units (43 vs. 48). Finally, we want to note that across both samples results from all mediational analyses (either in SEM or multilevel regression) remained essentially the same when the effects of demographic variables (e.g., organizational tenure, frequency of supervisor interaction, and weekly work hours) on focal outcomes were controlled.

General Discussion

The present article examines the role of aggression-preventive supervisor behaviors using two separate samples, as well as varied research designs (single- vs. multi-level design). We found evidence that converged to support the important role of APSB in understanding the aggression-related processes and outcomes. Specifically, results suggest that more frequent APSB observed by individual employees is associated with more positive VPC perceived by these employees, and more frequent APSB consistently observed by employees in the same units is linked to stronger shared VPC perceptions within those units. Further, via the mediation of employees' VPC perceptions, APSB observed by individual employees has significant and beneficial indirect effects on well-being-related, attitudinal, motivational, and behavioral outcomes. These indirect effects remain robust after controlling for theoretically relevant covariates (one at a time), specifically general supervisor support and safety-specific leadership.

In addition, as mediated by unit-level VPC, the average frequency with which employees from the same unit observed APSB

[3] Safety-specific leadership was used as an individual-level variable, as it has been conceptualized as such (e.g., Barling et al., 2002).

Table 4
Indirect Effects of Unit-Level APSB on Individual-Level Employee Outcomes Through Unit-Level VPC (Sample 2)

Independent variable	Mediator	Dependent variable	Residual direct effect	Indirect effect	Lower 95% CI	Upper 95% CI
APSB	VPC	Exposure				
		Coworker aggression	.09	−.19**	−.320	−.055
		Job attitudes				
		Job satisfaction	.36	.14	−.063	.349
		Turnover intention	−.54*	−.26**	−.441	−.079
		Strains				
		Emotional exhaustion	−.11	−.05	−.114	.019
		Physical symptoms	.02	−.07*	−.145	.000
		Aggression prevention-effort				
		Aggression prevention-motivation	.10	.06	−.042	.172
		Aggression prevention-participation	.04	.06	.021	.152
		Aggression prevention-compliance	.08	.08	−.018	.177

Note. $N = 337$. APSB = aggression-preventive supervisor behavior against aggression from coworkers; VPC = violence-prevention climate; CI = confidence interval. Values of the CI limits were rounded to three decimal places (instead of two) to better determine the focal effects' statistical significance (see prior practices such as Preacher & Hayes, 2004).
* $p < .05$. ** $p < .01$.

(i.e., unit-level APSB) has significant and beneficial indirect effects on individual employees' exposure to coworker aggression, turnover intention, and physical symptoms. Finally, results suggest that more frequent individual- or unit-level APSB is directly related to more frequent behavior to comply with aggression-prevention programs, and lower turnover intention among employees from those units.

Contextual Influence and the Roles of APSB and VPC in the Aggression Process

Consistent with the idea of contextual influence, our research findings underscore the contextual roles of supervisors' aggression-preventive behaviors and VPC in predicting employees' experiences of and reactions to aggressive incidents. Specifically, when supervisors demonstrate APSB—such as monitoring warning signs of aggression between employees or instructing employees about how to reduce aggression from coworkers—they signal to employees the priority of aggression prevention. Such signals (i.e., social cues) received by individual employees help them form unique perceptions of their workplace's VPC, which explains the positive relation between individual-level APSB and individual-level VPC perceptions. Further, if employees in the same unit observe frequent and similar supervisor practices focused on aggression prevention, they should come to a shared, collective understanding that aggression prevention is as high a priority as other work goals such as productivity. As such, the unit-level managerial coherence experienced by employees in the same unit (i.e., unit-level APSB) contributes to their shared perceptions of VPC. An interesting finding was that in Sample 2 APSB is more strongly related to VPC at the unit level than at the individual level ($r = .34$ vs. $.22$). This may indicate that stronger signals are sent by typical and consistent (unit-level) supervisor-employee interactions than by interactions unique to each employee.

Furthermore, at the individual level we found evidence for the indirect beneficial effects of APSB on various employee outcomes through employees' VPC perceptions (i.e., psychological climate). Few of the direct relations between individual supervisors' APSB and employee outcomes were significant after taking into account the indirect effects. In other words, individual supervisors' practices appear to benefit individual employees' aggression-related and aggression-unrelated outcomes when such practices are interpreted as indicators of the organization's emphasis on reducing aggression (i.e., VPC). Such findings highlight the important role of individual VPC perceptions as potential motivational resources that support employees' efforts to manage workplace aggression and benefit their job attitudes and stress coping (Chang et al., 2012). For example, when employees believe aggression prevention is put at a relatively high priority after seeing their supervisors' enactment of aggression-preventive behaviors, they may be more inclined to believe their organization is committed to aggression prevention and feel more efficacious in taking actions to prevent aggression as well as more satisfied with their job in general.

Additionally, via the mechanism of shared unit-level VPC, we found evidence for the indirect effects of unit-level APSB on individual employees' exposure to coworker aggression, physical symptoms, and turnover intention. This suggests that a pattern of APSB frequently observed by multiple employees within certain units (i.e., salient social context) can help shape shared, positive VPC perceptions among employees in those units. Such a positive psychosocial context within unit (shared VPC) equips employees with readiness and strategies to handle uncertain situations—including negative social interactions like conflicts—that in turn reduce the likelihood of aggression occurrences between employees, employee psychosomatic symptoms, and employee turnover intention. In addition, as is consistent with the idea of contextual influence, frequent unit-level APSB can exert such a strong, direct contextual influence on employees within the unit that they demonstrate more positive attitudes (i.e., turnover intention) upon observing their supervisors' APSB. These cross-level findings are important as they suggest employees' job attitudes and aggression-related outcomes may benefit directly and indirectly from supervisors' high-frequency aggression-preventive action across situations within the unit. Finally, we offer two explanations for the nonsignificant indirect effects of unit-level APSB on employee aggression-prevention motivation and performance, emotional ex-

haustion, and job satisfaction. First, the statistical power resulting from a modest number of units (48) and small and unequal unit sizes (2–17 per unit) might be too limited to detect such effects. Second, the true magnitude of these indirect effects may be relatively small. For example, employees' levels of motivation and effort to prevent aggression (e.g., compliance, participation) may be more influenced by their personalities (e.g., conscientiousness) and available personal resources (e.g., time, skills) than by the unit-level VPC and supervisor practices. With regard to the nonsignificant indirect effects of APSB on emotional exhaustion and job satisfaction, it is likely that these affect-laden strains are more strongly influenced by employees' emotional regulation skills, personal traits (e.g., negative affectivity), or both, than by unit-level resources that APSB and VPC can afford.

The Role of Line Supervisors in Aggression Prevention

The present article underscores the key role line supervisors may play in managing workplace aggression, particularly with respect to aggression between employees. Our newly developed measure of APSB allows employees to specify the job title of their direct supervisor (i.e., the supervisor who most often directs their daily work) so that employees may use this supervisor as a frame of reference while reporting the frequency of corresponding aggression-preventive behaviors. Thus, the APSB construct we examined focuses on the behaviors of line supervisors. As evidenced by both Samples 1 and 2, APSB plays an important role in shaping employees' unique and shared VPC perceptions, and in predicting downstream employee outcomes, including strains, aggression exposure, aggression-prevention motivation and performance, and job attitudes. Such findings are also in line with the idea of contextual influence because supervisors' behavior (e.g., APSB) represents a salient aspect of employees' work context and thus it exerts strong influence on their attitudes and behaviors.

More importantly, the effects of APSB found in the present study could not be explained by general supervisor support or safety-specific leadership. The unique role played by APSB with respect to employees' aggression-related experiences is unsurprising. In accordance with the tenet of predictor-criterion correspondence (Cronbach & Gleser, 1957), APSB includes supervisor behaviors specific to the context of aggression (and its prevention) and thus, should have stronger relations with aggression-related criteria (e.g., VPC, aggression exposure, and aggression-prevention effort) than other supervisor variables (e.g., general supervisor support, safety-specific leadership). The more intriguing part of our finding is that individual- or unit-level APSB was associated with lower general strain (for both physical and emotional forms) as well as better job attitudes, over and above general supervisor support or safety-specific leadership. One potential explanation is that APSB addresses the very stressful yet sensitive workplace relationship issue of coworker aggression, and it helps to buffer employees' strains via clarifying expectations relevant to aggression prevention and suggesting specific directions for coping through presenting resources such as policies and procedures. Moreover, because coworker aggression is very prevalent in the health care setting (Vessey et al., 2010), APSB may be valued by employees as a resource for coping with this type of work demand. Thus, directly or through shaping VPC, APSB can exert stronger influence on employees' general attitudes toward management and/or the job itself than other supervisor variables.

Practical Implications

Findings from the present study have at least two important practical implications. First, we offer a validated measure of APSB, which could help organizations assess current supervisory practices focused on aggression prevention and devise possible intervention programs aimed at preventing aggression (e.g., training line supervisors to enact APSB). Second, our study demonstrated that frequent APSB by individual supervisors or by all supervisors within the same unit can positively shape unique or shared perceptions of VPC. This lends opportunities to extend existing programs that target enhancing positive organizational climate for reducing mistreatment (e.g., the Civility, Respect, Engagement at Work intervention; Leiter et al., 2011). That is, to enhance positive VPC, organizations could use training programs or informal mentoring programs to improve line supervisors' practices in declaring aggression-prevention-related policies and procedures, monitoring aggression-related warning signs, stepping in to de-escalate high-risk situations, instructing employees about prevention strategies, as well as proactively managing interpersonal compatibility between employees. According to our preliminary findings, such efforts to increase individual supervisors' APSB could gradually improve VPC, which in turn helps employees to manage aggression experiences as well as benefit their job attitudes and well-being. If successfully implemented, such efforts may lead to frequent APSB by many supervisors, which may then directly increase employees' compliance with aggression-prevention policies and procedures, as well as improve their job attitudes. In summary, the present study provides new directions for future practices in managing workplace aggression that go beyond the current practices that primarily involve focusing on either administrative control or general training (e.g., Griffin, 2004; Rankins & Hendey, 1999).

Limitations and Future Research

Several limitations about the present study are worth mentioning. The first limitation of this article is that both Samples 1 and 2 used a cross-sectional survey design, which limits our confidence in drawing causal inferences (e.g., whether APSB leads to VPC or vice versa). With that said, because our proposed mediational model (see Figure 1) is grounded in sufficient existing theoretical and empirical evidence, we contend that convergent empirical evidence across two independent samples lends support to the validity of this model. Building upon the findings of our present study, future research using longitudinal study designs is warranted to cross-validate the proposed model. Further, future research using longitudinal designs should also investigate additional mediators (beyond VPC) that may be inherent in the APSB-outcome relations. For example, trust in management, a factor critical for employee and organizational outcomes (McAllister, 1995), may be influenced by managerial practices (Mayer & Davis, 1999); thus, trust could be another mediator present in the APSB-outcome relations. Similarly, psychological safety may be shaped by supportive supervisor relationships (May, Gilson, & Harter, 2004) and may further account for critical employee outcomes such as strains and willingness to report errors (Edmondson, 1996); as such, it could serve as another mediator linking APSB with outcomes.

The second limitation is related to the self-report measurement method used in both Samples 1 and 2. Given the sensitive nature

of the focal research topic (i.e., aggression from coworkers or workplace aggression in general), it is fairly common for studies to use self-report methods (Yang et al., 2014). Admittedly, collecting data solely by self-report measures may raise concerns of the biasing effects of common method variance (CMV) on the estimation of focal relations (Podsakoff, MacKenzie, & Podsakoff, 2012). We, however, deem CMV is not a significant concern in our study for two reasons. First, there are arguments and evidence in the literature supporting the appropriateness of using self-report methods in studying occupational-stress-related topics, such as workplace aggression in our case (Spector, 2006). Second, some simulation research (e.g., Lai, Li, & Leung, 2013) has shown that parameter estimates of cross-level relations are robust under the majority of real-life situations where CMV comprises less than half of the true variance, especially for multilevel models with aggregated variables as predictors (i.e., the case of our Sample 2). Despite the above arguments about CMV, we recommend that future research employ multisource methods in examining the relations between APSB and outcomes, such as utilizing coworker-reported data on aggression-prevention performance or obtaining archival records of aggression incidents.

The third limitation pertains to our use of supervisor support and safety-specific leadership as control variables in Samples 1 and 2, respectively. By including these two control variables, we were able to test the incremental variance explained by APSB in the focal outcomes beyond these two conceptually related yet distinguishable constructs. With that said, supervisor support and safety-specific leadership were not assessed simultaneously in either of the two samples, thus they were not controlled simultaneously in any of the analyses. To better understand the unique contribution of APSB over and above these two covariates, we recommend that a future study assess and control for both variables in the same sample.

An additional limitation is that not all units in Sample 2 had three or more participants, which might have limited our ability to find reliable estimates of unit-level APSB and VPC. While the results from analyses including only those units with three or more participants were very similar to those presented in our article based on units including two or more participants, we strongly encourage future research to cross-validate our study findings with a larger number of units that each consist of three or more participants. Finally, our article is limited because the main study and the pilot study for scale development and validation (see Appendix) utilized samples from the same industry—health care. Future research is warranted to replicate our findings by using samples drawn from multiple industries. With that said, the present study represents an initial effort in developing and testing a model of APSB and aggression-prevention processes; consequently, using samples from the same industry may help maximize the internal validity of our research model (Shadish et al., 2002). Additionally, we believe that our study findings are somewhat generalizable to non-health care industries because our focal phenomenon of aggression from coworkers exists in almost all industries (e.g., Schat et al., 2006), and because various forms of organizational climate and supervisory practices focused on employee relationships and well-being have been shown to predict employee outcomes similarly across industries (e.g., family supportive supervisor behavior [Hammer, Ernst Kossek, Bodner, & Crain, 2013]; civility climate [Walsh et al., 2012]).

Conclusions

Findings from this article contribute to our understanding of the positive role of APSB in managing the aggression process, through exerting contextual influence on VPC at both the individual and unit levels, thereby extending the prior literature on VPC that has focused primarily on its outcomes. Of importance, APSB relates to a broad range of employee attitudinal and behavioral outcomes directly or indirectly through individual and/or shared VPC perceptions, which informs the understudied processes of aggression from coworkers. More important, the effects of APSB described above were incremental to those of general supervisor support and safety-specific leadership, thus extending our understanding of line supervisors' leadership behavior to a new context, namely workplace aggression. Thus, our study findings suggest it is promising to focus on APSB in designing future organizational interventions to prevent employee exposure to aggression at work.

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Appendix

Development and Validation of the Aggression-Preventive Supervisor Behavior (APSB) Scale

To develop and validate a theoretically rigorous new measure of APSB, we took seven steps in consistent with the recommended practices in the literature (Edwards, 2003; Hinkin, 1998). These steps included: (a) individual and focus group interviews and identification of qualitative behavioral dimensions through thematic analysis, (b) review of APSB behavioral dimensions by subject matter experts (SMEs), (c) item generation, (d) initial item reduction and dimension refinement, (e) further item reduction via exploratory factor analysis, (f) confirmatory factor analysis, and (g) convergent/discriminant validity analysis.

Step 1: Interviews and Thematic Analysis

Twenty health care workers recruited from two urban universities participated in individual or focus group interviews. They were asked to describe specific incidents in which their direct supervisors enacted behaviors aimed at preventing aggression from coworkers. Among the 20 interviewees, 2 were men, 17 were employed at the time of the interview, and 2 held a supervisory position at their job. On average, they were 30.00 ($SD = 8.22$) years old and had an average tenure of 3.78 ($SD = 2.52$) years at their current job and 5.70 ($SD = 3.95$) years of experience in the health care industry. On average, the interviewees worked 26.77 ($SD = 11.17$) hours per week. All participants except for two held unique occupations in health care, such as licensed practical nurse, certified nursing assistant, and medical technician. Based on the transcriptions of interview audio recordings, the authors applied an open-coding approach to identify possible APSB dimensions (Strauss & Corbin, 1998) using ATLAS.ti 5.0 (Muhr & Friese, 2004) software. After the first round of independent coding, the coders reduced redundancy among the emergent dimensions through three rounds of discussions. Following this process, they merged their separate list of behavioral dimensions.

The coders agreed on the following APSB dimensions: (a) *Declare* organizational aggression-prevention policies and procedures, (b) *Monitor* aggression-related warning signs, (c) *Intervene* in interpersonal interactions with a high risk of leading to aggression, (d) *Instruct* and guide employees about specific aggression-prevention strategies, (e) *Manage* interpersonal interactions through enhancing compatibility between interacting parties, and (f) *Respect* privacy while addressing aggression incidents. These behavioral themes are consistent with the framework of declarative (i.e., Declare), active (i.e., Monitor, Intervene, Instruct, and Respect), and proactive (i.e., Manage) supervisor practices elaborated in the literatures on organizational learning and safety practices (Argyris & Schon, 1996; Zohar & Luria, 2005). To prepare for the second phase, the authors carefully defined each of the three general dimensions of supervisor practices, defined each APSB dimension, and selected two to three behavioral examples (i.e., quotes) from the interview or focus group transcripts for each dimension.

Step 2: SME Evaluations of Behavioral Dimensions

Seven subject matter experts (SMEs) in occupational health and safety or relevant fields reviewed the behavioral dimension definitions and respective behavioral examples, as well as assessed the correspondence between the behavioral dimensions and the provided theoretical dimensions of supervisory practices. Each of the seven SMEs held a Ph.D. in either industrial and organizational psychology, social psychology, or nursing, and they all had at least 10 years of research and/or practical experiences in the fields of occupational safety and health and/or nursing. Five out of seven SMEs suggested that the Respect dimension somewhat overlaps with the Intervene or Instruct dimensions, and could be subjective to individual supervisors' personal interpretation because of its association with legislative guidelines specific to the health care setting (e.g., Occupational Safety and Health Administration's reporting requirements). After independently assessing the prior literature and SMEs' feedback, the authors concluded that Respect represented a particular approach of handling aggression incidents instead of a stand-alone type of supervisor practice, and accordingly dropped this dimension. Thus, findings from this step

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indicate that the first five APSB dimensions listed above (i.e., Declare, Monitor, Intervene, Instruct, and Manage) are appropriate for preventing aggression from coworkers, and they fall into the three expected categories or dimensions of general supervisory practices: declarative (i.e., Declare), active (i.e., Monitor, Intervene, and Instruct), and proactive (i.e., Manage) practices.

Step 3: Item Generation

For each of the five retained APSB themes, the authors developed items specific to aggression from coworkers based on prior literature and the interview data. The number of items developed varied from 9 to 19 for different dimensions, resulting in a total of 57 items.

Step 4: Initial Item Reduction and Dimension Refinement via Q-Sort Methodology

The authors applied a Q-sort methodology in which another six SMEs assessed the clarity of the items and confirmed the qualitative fit of items to their corresponding behavioral dimensions (Block, 1961). The six SMEs included one Ph.D. in industrial and organizational psychology and five advanced doctoral students (with Master's degrees) in applied psychology who had research experience in the area of occupational health and safety as well as work experience in various industries. There were two steps: (a) three SMEs assessed item clarity and sorted items into predefined behavioral dimensions, and (b) the other three SMEs each came up with dimension definitions according to the items listed under each theme. These two steps of the Q-sort process converged to support the validity of the five-dimension APSB framework. According to the inputs from the first three SMEs, we excluded 25 items either because of lack of clarity in wording, content overlap, or insufficient fit with their intended dimension, which was signaled when two out of three SMEs categorized an item into an unintended dimension. Through this process, 32 items (6–7 items per dimension) were retained and included in the subsequent scale validation surveys described below.

Step 5: Further Item Reduction via Exploratory Factor Analysis

To further reduce the number of items and explore the factor structure of the scale, we selected a random subsample of 158 participants from our Sample 1 ($N = 237$), and the unselected participants were set aside for a subsequent confirmatory factor analysis (see the following step). These participants included nurses from different organizations on the West coast of the United States. First, we ran frequency analysis and excluded two items from the Manage dimension because of their low applicability to participants' work settings; that is, over one-third of survey respondents endorsed "not applicable." Second, we examined interitem correlations for each target dimension and made initial item reduction by eliminating any item that correlated less than .40 with other items, as such an item may not reflect the appropriate content domain (Kim & Mueller, 1978). This process led us to eliminate an additional item from the Manage dimension. Further, we ran an exploratory factor analysis (i.e., principal axis factoring with Oblimin rotation) to examine the factor structure of the 29 items; we chose the Oblimin rotation based on past theoretical and empirical evidence (Argyris & Schon, 1996; Zohar & Luria, 2005), and to permit the underlying factors to correlate. The factor analysis demonstrated a three-factor structure as three factors had eigenvalues larger than 1.00 and total item variance explained by the factors was 85.26%. These three factors corresponded to the declarative, active, and proactive general supervisor practices drawn from the organizational learning literature (Argyris & Schon, 1996). Based on the pattern matrix, we eliminated items with loadings on their primary factor that were less than .70 and/or with high cross-loadings on nonprimary factors (e.g., substantially more than half of the primary loadings; Hinkin, 1998). When eliminating items, we ensured that remaining items were conceptually representative of all target behavioral components within respective dimension of supervisor practices; for example, within the active practices dimension we retained at least one item for the Monitor, Intervene, and Instruct components. For those items that passed the aforementioned inclusion criteria, we performed an additional content analysis to remove any item that overlapped substantially with another item that had an acceptable factor loading.

This process led us to retain nine total items: three items for the declarative practices dimension, three for the active practices dimension, and three for the proactive practices dimension, with the absolute values of all factor loadings at or above .57. Corresponding to the order of the respective factors described above, these nine items are: My direct supervisor "describes policies available in the organization for preventing aggression incidents between employees," "makes sure I am aware of the available organizational resources for preventing aggression between employees," "communicates the consequences of failing to follow organizational processes for preventing aggression between employees," "encourages me to update him/her regarding signs of potential coworker-initiated aggression," "steps in to resolve disputes between me and my coworkers before they escalate," "gives me advice for effectively working with specific aggressive coworkers," "assigns me to work with coworkers whom I get along with," "moves me and my coworkers around different shifts to ensure that people in the same shift work well together," and "reduces the chances of direct interaction between me and another coworker who have a history of interpersonal conflict." The moderate-to-high intercorrelations between factors (.43 to .73) suggest an underlying, global supervisor-practices factor. The correlation between the 9-item and the full 32-item versions was .97 ($p < .01$), which suggests that despite the item reduction, the shorter-scale is representative of the intended conceptual domain.

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Step 6: Confirmatory Factor Analysis

To confirm the factorial structure of the 9-item APSB scale, we ran confirmatory factor analysis (CFA) models using the maximum likelihood estimation method in Mplus 5.21 (Muthén & Muthén, 2006). For these models, we used data from those 79 participants who were not randomly selected for the exploratory factor analysis (see above), as well as data from an additional 80 participants who were part of a separate survey administration, resulting in a total of 159 participants. Model 1 consisted of all items loaded on an overall factor and did not fit our data well, whereas Model 2 consisted of a three-factor structure (i.e., declarative, active, and proactive practices) and yielded adequate fit ($\chi^2_{(27 \text{ vs. } 24)} = 155.60$ vs. 39.12, comparative fit index [CFI] = .83 vs. .98, root mean squared error of approximation [RMSEA] = .18 vs. .07, SRMR = .12 vs. .04, respectively, for the two models). The standardized factor loadings of Model 2 ranged from .65 to .94. More important, Model 2 fit the data significantly better than Model 1 ($\Delta\chi^2 = 116.48$, $\Delta df = 3$, $p < .01$). Further, a second-order CFA model with all three factors loaded on a subordinate global APSB factor demonstrated identical fit when compared with Model 2. Given medium-to-high interfactor correlations in Model 2 (range: .62–.73) and high loadings of the three factors on global APSB (range: .78–.92), we concluded that an overarching superordinate global supervisor practices factor (APSB) superseded all specific types of supervisor preventive practices (Law et al., 1999). Thus, we used overall APSB scale scores for hypothesis testing.

Step 7: Convergent/Discriminant Validity Evidence

As APSB is a new construct, we provide evidence regarding its convergent and discriminant validity with respect to violence-prevention climate (VPC) and leadership variables (general supervisor support and safety-specific leadership), respectively. APSB encompasses various ways in which supervisors emphasize aggression prevention by raising awareness of pertinent policies and enacting appropriate procedures and practices. Thus, supervisors' APSB (as observed by employees) should correspond to aggression-prevention policies, procedures, and practices of the organization, including those perceived by employees as in the case of VPC. Although APSB is comprised of supervisors' behaviors aimed at preventing aggression toward their employees, we posit that the construct should be conceptually distinguishable from general supervisor support and safety-specific leadership. In the following paragraphs, we provide empirical tests of these conceptual assumptions.

With respect to VPC, we tested its convergent validity with APSB. To do so, we used the Sample 1 ($N = 237$) and calculated the intercorrelations between the overall APSB scale, the overall VPC scale, and the three VPC subdimensions. The correlation between the overall APSB and VPC scales was .38 ($p < .01$). Further, the overall APSB scale shared medium-to-large correlations with the policies and procedures, $r = .41$, $p < .01$ and management practices and responses, $r = .37$, $p < .01$ VPC subdimensions, while its relation with the pressure for unsafe practices VPC subdimension was small ($r = .10$, *ns*). Collectively, this pattern of intercorrelations suggests that the overall APSB and VPC scales demonstrate some convergence; regarding the VPC subdimensions, however, the overall APSB scale is more strongly related to the policies and procedures and management practices and responses VPC subdimensions than to the pressure for unsafe practices subdimension.

Regarding general supervisor support and safety-specific leadership, we tested whether they could be distinguished from APSB using CFAs. To assess the discriminant validity between general supervisor support and APSB, we again used the Sample 1 ($N = 237$) described above. We compared two nested models. The first model specified that the three APSB factors and the supervisor support items loaded on an overall support factor, while the second model specified that the three APSB factors loaded on a separate global APSB factor and the supervisor support items loaded on separate general supervisor support factor. CFAs of nested models suggested that general supervisor support is distinguishable from APSB. As expected, a χ^2 test comparing nested models ($\Delta\chi^2 = 340.57$, $\Delta df = 2$, $p < .01$) suggested that the best fitting model was the one in which supervisor support was specified as a separate factor and the three separate APSB dimensions loaded on a global APSB factor ($\chi^2_{(50)} = 89.16$, CFI = .98, RMSEA = .06, SRMR = .05).

For the second set of CFAs, we used data from Sample 2 ($N = 337$). As in the case with general supervisor support, results from two nested CFA models showed that safety-specific leadership was distinguishable from overall APSB and its three subdimensions. We created five 2-item parcels for each pair of items that shared the same safety-specific leadership dimension (e.g., contingent reward, idealized influence). The first model specified that the three APSB factors and the safety-specific leadership items loaded on an overall leadership factor, while the second model specified that the three APSB factors loaded on a separate global APSB factor and the safety-specific leadership parcels loaded on a separate safety-specific leadership factor. As expected, χ^2 tests comparing the nested models ($\Delta\chi^2 = 207.93$, $\Delta df = 1$, $p < .01$) suggested that the best fitting model was the one with safety-specific leadership specified as a separate factor and the three separate APSB dimensions loaded on a global APSB factor ($\chi^2_{(74)} = 187.14$, CFI = .96, RMSEA = .07, SRMR = .06). Overall, these CFA models indicate that APSB is a construct distinguishable from general supervisor support and safety-specific leadership. More details about these CFA models can be obtained from the first author.

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