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Effects of Management Support, Team Member Support, and Job Status on Safety Climate and Employee Attitudes

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ABSTRACT

This study examined the impact of management and team member support on employee attitudes through the mediating effect of safety climate. Five hundred fifty-six physicians and nurses from a large teaching hospital in the eastern United States completed survey items assessing their perceptions of management support, team member support, and safety climate as well as job satisfaction and organizational commitment. Results indicated that while job satisfaction and commitment were directly affected by perceptions of management and team member support, these relationships were also partially mediated by safety climate. In addition, the results suggested that team member support contributed to the prediction of safety climate over and above the effect of management support alone indicating that multiple sources of support may be important in developing positive safety climates. The hypothesized moderating effect of job status was not significant. Implications of the results and suggestions for future research are discussed.

KEYWORDS



Safety climate; job satisfaction; organizational commitment; management support; team support

Introduction

In 2000, The Institute of Medicine (renamed National Academy of Medicine in 2015) released a report that highlighted the costs of medical errors in terms of both financial losses and human lives. According to the report, as many as 98,000 people die every year in hospitals due to preventable errors resulting in total costs ranging from \$17 to \$29 billion (Kohn, Corrigan, & Donaldson, 2000). Healthcare organizations are also plagued by non-fatal occupational injuries among employees, resulting in absenteeism costs, workload restrictions, and increased turnover (Flin, 2007; Nixon et al., 2015). The majority of errors and injuries are caused not by individual carelessness, but are due to faulty systems, processes, and organizational conditions that lead people to make mistakes or fail to prevent them (Derickson, Fishman, Osatuke, Teclaw, & Ramsel, 2015; Flin, 2007; Kohn et al., 2000). Awareness of the importance of organizational factors as pivotal contributing factors to patient and employee safety has led to considerable research on safety climates over the past two decades. This line of research has documented the effects of positive safety climates on a wide range of safety-related outcomes, including reduced occupational injuries (Beus, Payne, Bergman, & Arthur, 2010; Zohar, 2000), accidents (Hahn & Murphy, 2008; Wallace, Popp,

& Mondore, 2006), medical errors (Hofmann & Mark, 2006), and increased safety compliance and participation (Christian, Bradley, Wallace, & Burke, 2009; Clarke, 2006; Neal, Griffin, & Hart, 2000).

While much has been learned about safety climates, several areas are in need of additional attention. First, research on the attitudinal, non-behavioral effects of safety climate is underdeveloped relative to its effects on traditional safety-related behaviors and outcomes (e.g. errors, injuries). Thus, we investigate the role of safety climate in predicting two important job attitudes – job satisfaction and organizational commitment. Measuring both job satisfaction and organizational commitment allows for an investigation of the effects of safety climate on employee attitudes directed at different targets – the job and the organization. High levels of these attitudes are important because they have been linked to critical employee behaviors, like turnover and job performance (Dunham, Grube, & Castaneda, 1994; Judge & Kammeyer-Mueller, 2012; Meyer, Stanley, Herscovitch, & Topolnitsky, 2002). Second, compared to the effects of safety climates, less is known about its underlying antecedents, as well as factors that may moderate the effect of antecedents on safety climate perceptions. We examine the role of two situational antecedents, management support and team member support, on safety climate perceptions and employee attitudes. Third, we also

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look at whether job status moderates the effect of support on safety climate perceptions. In sum, we investigate both antecedents and attitudinal outcomes of safety climates and propose a moderated mediated model (Figure 1) whereby safety climate mediates the effects of management and team member support on employee attitudes and job status moderates the effects of support on climate perceptions. We elaborate on this model in the following sections.

Literature review

Support and employee attitudes

A large body of work in the management and organizational behavior literature has documented the positive effects of instrumental and socioemotional support from various targets on attitudinal outcomes. Eisenberger's work on perceived organizational support (POS), for example, demonstrates that organizational actions and policies that signal to employees that they are valued and cared for are associated with higher levels of job satisfaction and commitment to the organization (Kurtessis et al., 2017; Rhoades & Eisenberger, 2002). Employees can also form perceptions of support about other entities or individuals within the organization that provide material, informational, and socio-emotional resources, such as managers, co-workers, or team members (Eisenberger & Stinglhamber, 2011). This support can create more positive work experiences, contributing to higher job satisfaction and enhancing affective ties to the organization. The rationale for these relationships is drawn from social exchange theories (Eisenberger & Stinglhamber, 2011), which highlight the importance of the reciprocity norm (Gouldner, 1960). This norm suggests that employees feel

a sense of obligation to the organization and its agents (supervisors, managers) for favorable treatment and repay such treatment with greater ties to their jobs and the organization. In terms of managerial support, several prior studies have confirmed the positive relationships between supervisor support and job satisfaction (Babin & Boles, 1996; Baruch-Feldman, Brondolo, Ben-Dayan, & Schwartz, 2002; Kula & Guler, 2014) and organizational commitment (Rousseau & Aube, 2010; Stinglhamber & Vandenberghe, 2003).

Coworker or team member support may arise from both personal affiliations with specific coworkers and from the functional interdependence of team members. Interdependence is particularly important in the context of healthcare where coordination between care givers is critical to effective patient outcomes (Fewster-Thuente & Velsor-Friedrich, 2008). The support and guidance received from coworkers aids in socialization, role development, and higher quality interpersonal relationships. Higher levels of coworker support are more enjoyable, leading to greater job satisfaction (Ducharme & Martin, 2000; Liden, Wayne, & Sparrow, 2000; Major, Kozlowski, Chao, & Gardner, 1995; Seers, 1989).

Empirical research has also found a positive relationship between coworker or team support and organizational commitment (Liden et al., 2000; Rousseau & Aube, 2010).

Support as an antecedent to safety climate

Aside from leading to more favorable work attitudes, manager and team support should also significantly impact perceptions of safety climate. We focused on psychological climate, an individual-level construct that reflects an individual's perceptions of the psychological impact of the work

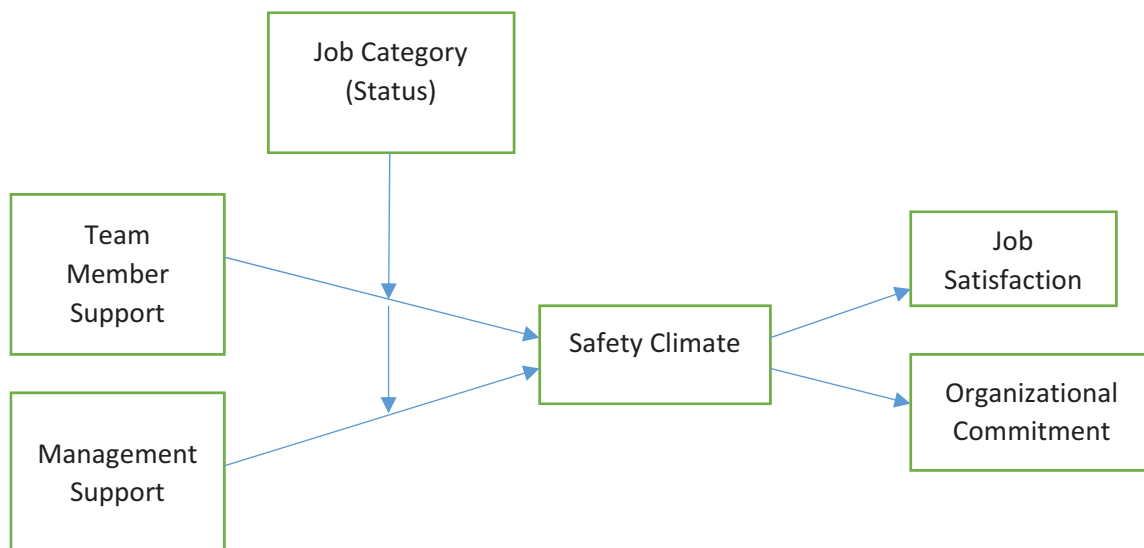


Figure 1. Hypothesized model.

environment on employee well-being (Kuenzi & Schminke, 2009). Aside from general climate perceptions, employees can also develop perceptions about specific facets of the organization's environment, such as safety (Kuenzi & Schminke, 2009; Schneider, White, & Paul, 1998; Victor & Cullen, 1988; Zohar, 2000). Although there is some disagreement regarding the definition of safety climate, most definitions capture employee perceptions concerning the degree to which safety is prioritized or valued in the work environment (Neal et al., 2000; Zohar, 2010).

With regard to safety climate antecedents, several researchers have shown that a number of situational elements are related to safety climate perceptions. Some researchers have classified situational features of the work environment as part of an organization's general climate. General organizational climate can be seen as a lens through which evaluations of the importance of safety are made. Neal et al. (2000) combined seven aspects of the work environment (appraisal and recognition, goal congruency, role clarity, supportive leadership, participative decision making, professional growth, professional interaction) into a general organizational climate scale and found it to predict safety climate. Tholen, Pousette, and Torner (2013) combined employee perceptions of eight different work environment factors into a single "psychosocial conditions" scale which correlated positively with safety climate. These studies support the effect of broad contextual influences on safety climate, but do not test the independent effects of individual situational factors on safety climate perceptions. Being able to isolate the separate effects of various situational influences on safety climate is important because it would help to ensure that interventions designed to improve safety climate are directed at the most appropriate factors.

Clarke's (2010) meta-analytic review went beyond the unidimensional treatment of general psychological climate as a predictor of safety climate. She used Jones and James (1979) general organizational climate taxonomy to differentiate potential antecedents into five general categories: job (degree of control, challenge), role (ambiguity, conflict, overload), group (work group cooperation, friendliness, reputation for effectiveness), leader (trust and support), and organization (communication, organizational support). Thus, the independent contribution of each dimension could be determined. Results indicated significant correlations with safety climate for all but the role dimension. Additionally, Wallace et al. (2006) found that the quality of management-employee relations significantly predicted safety climate perceptions.

Our focus on management support and team member support as antecedents of safety climate map onto Jones and James (1979) leader and group categories, respectively. How management is perceived to generally value

and treat employees provides a context to understand the priority management may place on the importance of safety. Employees are more likely to interpret management words and deeds concerning safety in a positive light if employees feel supported and valued by these leaders. A manager's level of caring and support toward employees likely leads to a perception that they are also concerned about employee and patient safety. Employees are unlikely to believe that management is sincere about safety unless they can look to prior interactions with management that confirm commitment to their well-being and success. Thus, we would expect that favorable perceptions of management support will lead to more positive safety climate perceptions.

Effective teamwork is crucial in hospital settings where patient care must be coordinated between different healthcare providers. It can be argued that the most important communication and interactions take place between physicians and nurses as those two groups form the core of the patient care team with others providing ancillary services at the direction of physicians and nurses. Davenport, Henderson, Mosca, Khuri, and Mentzer (2007) reported that higher levels of communication and collaboration between surgical service teams (including nurses) and attending/resident physicians were associated with lower risk-adjusted morbidity. Sexton et al. (2006) reported that lower levels of teamwork were correlated with higher levels of caregiver burnout and greater perceptions of communication breakdowns.

One important aspect of an effective team is the quality of support team members provide to one another. Thus, given the importance of the work group for accomplishing safety objectives in a hospital setting, the extent to which team members feel supported by their peers should also be an important consideration in the development of a strong safety climate. Individuals who experience high levels of support from coworkers are willing to assist other members of the work group (Liu, Keller, & Shih, 2011). This assistance can be important in an environment where one needs to be comfortable making mistakes and taking risks to ensure a safe workplace. Independent of a manager's attempt to foster a positive safety climate, the quality of interactions an employee has with coworkers may play an important role. Thus, we hypothesize a positive relationship between team member support and safety climate perceptions.

Job status as a moderator

The existence of status and professional hierarchy differences is well established in the health care literature (Coburn, 1992; Nembhard & Edmondson, 2006). For

example, physicians are accorded greater status than nurses, who are seen as having greater status than ancillary professions, and so on (Edmondson, Higgins, Singer, & Weiner, 2016). Edmondson and her colleagues have written extensively about the impact of such differences on psychological safety, the degree to which people view the work environment as conducive to interpersonally risky behaviors without fear of negative consequences (Edmondson et al., 2016). Interpersonally risky behaviors include speaking up, asking for help, reporting a mistake, or proposing a new idea. In general, status positively impacts feelings of psychological safety, with higher status employees perceiving greater levels of psychological safety (Derickson et al., 2015; Edmondson et al., 2016). This construct is relevant to the development of strong safety climates because safety will be a low priority if employees do not feel comfortable pointing out errors and reporting unsafe work practices. Studies have also found differences between roles with respect to teamwork perceptions, with physicians reporting greater satisfaction with collaboration and teamwork climate than nurses (Makary et al., 2006; Sexton et al., 2006).

Based on the increased freedom, power, and psychological safety associated with higher status employees, we propose that management and team support will be less important in influencing safety climate perceptions for high as opposed to lower status employees. In other words, we predict that job status (doctors versus nurses) will moderate the relationship between support from both managers and team members and safety climate, such that the relationship between support and safety climate will be stronger for low status individuals compared to higher status individuals.

Safety climate and work attitudes

As noted earlier, less research has attended to non-behavioral effects of safety climates as compared to traditional safety outcomes like errors and injuries. Encouraging a safe workplace further signals the valuation that management holds for employees and should correlate positively with both job satisfaction and organizational commitment. Such actions are seen as more evidence of favorable treatment and commitment to employees' personal well-being. In terms of social exchange theory, strong safety climates operate as part of the social exchange dynamic in that employees react more positively when they perceive greater levels of support for workplace safety (Dejoy, Della, Vandenberg, & Wilson, 2010). Employees would most likely reciprocate by engaging in safer behavior; however, a positive safety climate should

lead to additional benefits beyond its effect on traditional safety behaviors. Employees should also reciprocate by developing more positive attitudes, namely, greater job satisfaction and organizational commitment (Huang et al., 2016). Several studies have found support for the proposition that safety climate perceptions predict job satisfaction (Huang et al., 2016; Kath, Magley, & Marmet, 2010; Nixon et al., 2015) and organizational commitment (Clarke, 2010).

Hypotheses

In sum, consistent with established findings, we would expect to replicate the relationships found in prior research between manager and team/coworker support and employee attitudes (job satisfaction and organizational commitment). Beyond confirming these relationships, we add to existing work by 1) investigating the links between manager and team member support and employees' safety climate perceptions, 2) contributing to a growing body of work linking safety climate perceptions to positive employee attitudes, and 3) examining the potential moderating effect of job status on the importance of management and team support in creating positive safety climates (see Figure 1). We hypothesize:

H1: There will be a direct effect of perceptions of management support on safety climate, job satisfaction, and organizational commitment. When perceptions of management support are higher, employees will report greater levels of safety climate, job satisfaction, and organizational commitment.

H2: There will be a direct effect of team member support on safety climate, job satisfaction, and organizational commitment. When team member support is higher, employees will report greater levels of safety climate, job satisfaction, and organizational commitment.

H3: Safety climate will mediate the effect of perceptions of management support on job satisfaction and organizational commitment.

H4: Safety climate will mediate the effect of team member support on job satisfaction and organizational commitment.

H5: There will be a significant interaction between management support and job category on safety climate such that management support will have a stronger effect on safety climate for lower status (nurses) as opposed to higher status employees (physicians).

H6: There will be a significant interaction between team member support and job category on safety climate such that team member support will have a stronger effect on safety climate for lower status (nurses) as opposed to higher status employees (physicians).

Method

Sample and procedures

Five thousand one hundred thirty-four employees from a large teaching hospital in the Northeastern United States were invited to participate in the survey. One thousand two hundred twenty-two employees completed the survey for a 23.8% response rate. Although the survey was sent to all active employees (per the hospital's request), for the purpose of the current study, only two general categories of employees were of interest, nursing and medical staffs. Those categories include (1) nursing department ($N = 364$), (2) medical staff ($N = 159$), and (3) residents and interns ($N = 33$). The medical staff and residents and interns categories were combined into one category. A cross tabs analysis was run to ensure that there were no potential confounds due to differences between the medical groups, in terms of experience. The Chi-Square analysis indicated that the two variables (experience and medical group) were independent. (Chi-square = 5.189, $df = 6$, $p > .05$). The other categories surveyed were not included in the data analyses. Those categories included (1) surgical services, (2) clinical departments, (3) support departments, (4) administration, (5), functions outside of the hospital and (6) administrative functions. All results described hereafter include only data from the nursing and medical staffs ($N = 556$).

Employees were told that the hospital was administering the survey to obtain a status update on the attitudes of their employees. The survey was entered into an on-line system and a link to the survey was posted on the hospital's secure intranet site. Participants were given two weeks to complete the survey. Several reminder e-mails were sent from the Chief Medical Officer encouraging employees to complete the survey. In order to incentivize people to participate, those that completed the survey were entered into a raffle where they could win several prizes including an I-Pad, sporting event tickets, a gift card or a gift certificate for dinner at a local restaurant. A department-level prize was awarded to the department with the highest participation rate. Two awareness events were held at the hospital where employees were provided with free dessert and could become more familiar with the survey and its purpose.

Measures

Scales were constructed using items from the short-form of the Safety Attitudes Questionnaire (SAQ) (Donald & Canter, 1993). Reliability analyses were conducted for each scale and are presented in Table 1. Six items measured team support (e.g., the physicians and nurses here work together as a well-coordinated team (Cronbach's alpha = .81), eight items measured safety climate (e.g., medical errors are handled appropriately in this work area) (Cronbach's alpha = .85), nine items assessed perceptions of management support (e.g., I get adequate, timely information about events that affect my work from unit management) (Cronbach's alpha = .90). The job satisfaction (e.g., I like my job) and organizational commitment (e.g., working here is like being part of a large family) scales consisted of two items each ($r = .72$; $r = .60$, respectively). All items were measured on a scale ranging from 1 (disagree strongly) to 5 (agree strongly). Previous research examining the dimensionality of the SAQ has confirmed the dimensionality and stability of the measure (Colla, Bracken, Kinney, & Weeks, 2005).

The majority of respondents were female (54%). With respect to ethnicity, 53.8% were White (non-Hispanic), 4.9% were Black/African American, 2.9% were Hispanic, 4.9% were Asian/Pacific Islander, 0.2% were Multi-ethnic, 1.3% chose other, and 32.1% declined to answer the question. Age was measured using the following categories: less than 30 (12.9%), 30–34 (10.6%), 35–39 (10.3%) 40–44 (9.0%) and 45 and over (30.8%) with 26.4% of respondents declining to provide age information.

Participants also responded to demographic questions assessing hospital tenure and tenure in their respective field. For hospital tenure, 3.6% of respondents were employed by the hospital for less than 6 months, 6–11 months (3.4%); 1–2 years (10.3%); 3–7 years (27.7%); 8–12 years (12.8%); 13–20 years (11.0%), and 12.9% had been employed at the hospital more than 21 years; 18.3% did not respond to the question. In terms of tenure in their field, 2.9% of respondents indicated less than 6 months experience; 6–11 months (1.8%); 1–2 years (9.4%); 3–7 years (21.9%); 8–12 years (10.8%); 13–20 years (14.9%), and 20% had more than 21 years of experience in their field; 18.3% of participants declined to answer the question. The majority of employees worked on the day shift (51.4%) while the remainder worked the night shift (12.8%), variable shift (14.0%) shift or declined to answer the question (21.5%).

Analytical procedures and results

Descriptive statistics and zero-order correlations for the study variables are provided in Table 1. All correlations were in the expected direction.

Table 1. Descriptive statistics and variable intercorrelations.

Variables	M	SD	1	2	3	4	5
1. Team Member Support	4.17	0.80	(.81)				
2. Safety Climate	4.15	0.73	.77*** (.90)				
3. Management Support	3.48	0.98	.74***	.77*** (.85)			
4. Job Satisfaction	4.37	0.88	.62***	.62***	.67*** (.72)		
5. Organizational Commitment	4.26	0.89	.65***	.63***	.65***	.78*** (.60)	
6. Job Status ^a	--	--	.15**	.11*		.10*	.06

Reliability/inter-item correlation coefficients are displayed in the diagonal.

^aJob status: 0 = nursing department, 1 = medical staff including residents and interns.

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

Conditional process analysis (Hayes, 2013) was used to examine the direct and indirect effects of team member and management support on job satisfaction and organizational commitment through the mediating effect of safety climate and to examine the moderating effect of job category on the relationship between team and management support and perceptions of safety climate. Hayes' method uses an ordinary least squares path analytic framework for assessing indirect and direct effects in moderated-mediated models. In models with two endogenous independent variables, Hayes recommends running two sets of regressions with each of the independent variables (management support, team support) using the second independent variable as a covariate in each of the analyses (Hayes, 2013).

The conditional process analysis program also provides bootstrap and Monte Carlo confidence intervals that can be used to evaluate model fit. Bootstrap confidence intervals that do not contain zero are considered a good fit to the data while confidence intervals that contain zero are not considered a good fit.

Model 7 (see Figure 1) was used to assess model fit (Hayes, 2013). In conditional process analysis, model 7 allows for the inclusion of multiple independent measures and dependent measures as well as the incorporation of a mediator and a moderator into the model.

The results of the conditional process analysis indicated that safety climate partially mediated the relationship between management support and job satisfaction and between team member support and job satisfaction. Team member support ($b = .44$, $t = 10.65$, $p < .001$) and management support ($b = .28$, $t = 8.11$, $p < .001$) were significant predictors of safety climate and safety climate significantly predicted job satisfaction ($b = .28$, $t = 3.74$, $p < .01$) and organizational commitment ($b = .35$, $t = 4.78$, $p < .001$). The direct effects of team member support ($b = .16$, $t = 2.41$, $p < .05$) and management support ($b = .35$, $t = 6.55$, $p < .001$) on job satisfaction were also significant as were the direct effects of team member support ($b = .15$, $t = 2.20$, $p < .05$) and management support ($b = .30$, $t = 5.55$, $p < .001$) on organizational commitment (see Table 2).¹

Table 2. Moderated-Mediated regression results.

Variables	SC		OC		JS	
	B	SE	B	SE	B	SE
MS	.28***	.03	.30***	.05	.35***	.05
TMS	.44***	.12	.15*	.07	.16*	.07
Job status	-.01	.05				
TMSxJob status	-.02	.06				
SC			.35***	.07	.28**	.07

MS = management support; TMS = team member support; SC = safety climate; OC = organizational commitment; JS = job satisfaction.

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

Bootstrap analysis: organizational commitment

Results of the bootstrap analysis for organizational commitment indicated the same pattern of results confirming the direct and indirect effects of team member support and management support on commitment. Neither the confidence intervals for the direct effect of team member support or management support contained zero. For the indirect effects, the confidence intervals at 1 SD below the mean and 1 SD above the mean of the moderator, job status, failed to include zero thus supporting the indirect effect of team member support on organizational commitment. Consistent with the results for team member support, the indirect effect of management support was also supported by the bootstrap analysis (See Table 3).

Bootstrap analysis: job satisfaction

Results of the bootstrap analysis confirmed the direct and indirect effects of team member support and management support on job satisfaction. Neither the confidence intervals for the direct effect of team member support or management support contained zero. For the indirect effects, the confidence intervals at 1 SD below the mean and 1 SD above the mean of the moderator, job status, failed to include zero, thus supporting the indirect effect of team member support on job satisfaction (see Table 3). Consistent with the results for team member support, the indirect effect of management support on job satisfaction was also supported by the bootstrap analysis.

Table 3. Estimates and bias-corrected bootstrapped 95% confidence intervals for the conditional indirect effect of team member support and management support on organizational commitment and job satisfaction at ± 1 standard deviation of job status.

	OC			JS		
TMS						
Job Status Level	Estimate (SE)	CI	Estimate (SE)	CI		
-1 SD Job status	.16 (.04)	[.08, .24]	.13 (.04)	[.05, .21]		
+1 SD Job status	.15 (.04)	[.08, .25]	.12 (.04)	[.05, .21]		
MS						
-1 SD Job status	.10 (.03)	[.05, .16]	.08 (.03)	[.03, .14]		
+1 SD Job status	.10 (.03)	[.05, .17]	.08 (.03)	[.03, .15]		

TMS = team member support; MS = management support; SC = safety climate; OC = organizational commitment; JS = job satisfaction.

The results of the conditional process analysis supported Hypotheses 1–4, which predicted direct effects of team member and management support on job satisfaction and commitment as well as an indirect effect of safety climate. There was no interaction between job status and either perceptions of management or team support on safety climate, thus Hypotheses 5 and 6 were not supported.

Supplemental analyses

As reported above, both team member support and management support were significant in predicting safety climate thus suggesting that both are important in creating the perception of a safe workplace. One additional question that arises is whether team member support adds incremental variance in the predication of safety climate that would help us further understand the antecedents of safety climate. In order to explore the added value of including team member support in the model, a hierarchical regression analysis was conducted regressing perceptions of management and team support on safety climate. In the first step, management support was added to the regression equation; team member support was added in the second step. While both variables were significant, results indicated that the inclusion of team member support ($\beta = .491, t = 10.75, p < .001$) significantly increased the variance accounted for over management support ($\beta = .372, t = 8.14, p < .001$) alone. The R^2 increased from .541 to .648 indicating that team member support accounted for an additional 10% of the variance in the change in safety climate. When team member support was added to the regression equation, the beta weight for management support dropped from .74 to .37, further suggesting that team member support adds important variance in predicting safety climate.

Although Hypotheses 5 and 6 were not supported, it is interesting to note that the results of an ANOVA indicated that the nursing and medical staffs differed in their perceptions of management support ($F(1, 375) = 3.99, p$

$< .05$), team support ($F(1, 456) = 10.23, p < .01$), and safety climate ($F(1, 456) = 4.56, p < .05$). Compared to the nursing staff, the medical staff reported more positive perceptions of management ($M = 3.62$ versus 3.41) and team support ($M = 4.33$ versus 4.08) as well as greater levels of safety climate ($M = 4.25$ versus $M = 4.10$).

Experience as a potential confounding factor

One might argue that experience could have an effect on employee attitudes. Because of the way that experience was measured using ranges resulting in seven categories, it could not be included as a covariate in the conditional process analysis. In order to examine the impact of experience working in their current hospital environment, two ANOVAs were conducted. In the first ANOVA, we examined the differences within the nursing staff for all of the study variables. No significant differences were found for any of the measures. In the second ANOVA, we examined the differences within the medical group (attending and residents/interns) for all of the study variables. The ANOVA revealed a significant difference between groups on one variable, team support ($F(6, 151) = 2.24, p < .05$). The differences between means were very small, and no significant differences were found using Tukey's HSD post hoc test. Tukey's test was used rather than using Fisher's LSD as the LSD is not recommended when comparisons are made between more than three groups (Hayter, 1986).

Discussion

One purpose of the current research was to explore two antecedents of safety climate, management and team member support, and the impact of safety climate on two organizational outcomes, job satisfaction and organizational commitment. The results provided partial support for our model. Both management and team member support significantly predicted safety climate which in turn predicted job satisfaction and organizational commitment. Since both types of support were also directly related to satisfaction and commitment, we conclude that safety climate partially mediates the relationship between support and the outcome variables.

A second purpose of the study involved examining the role of job status in influencing safety climate. Although we proposed that job status would moderate the relationship between management/team member support and safety climate, the results did not support those hypotheses. Despite the medical staff reporting significantly more positive perceptions of team member support, management support, and safety climate, the strength of the relationships between management and

team support and safety climate did not differ between medical staff and nurses. This suggests that status may impact the level of support that is perceived but that both groups appear to view support as important in determining safety climate. Future research should further explore the issue of status and how it may impact safety climate, attitudes, and behavior.

Although not specifically hypothesized, hierarchical regression analyses suggested that team member support added incremental variance to the prediction of safety climate over and above that predicted by management support alone. This finding is consistent with management research that has reported that team member exchange adds significantly to the prediction of employee attitudes over the influence provided by leader member exchange alone (Banks et al., 2014).

The findings with respect to the direct relationships between management/team member support, with job satisfaction and organizational commitment are consistent with previous research based on social exchange theory that has highlighted the importance of relationships between managers and co-workers and employee attitudes (Babin & Boles, 1996; Baruch-Feldman et al., 2002; Kula & Guler, 2014). The results of the current study further suggest that both team member support and management support may be important factors in understanding perceptions of safety climate and how safety climate impacts attitudes toward the job and the organization. This study adds to the existing literature on safety climate by focusing on factors that help us understand how safety climate perceptions may develop. When employees feel that they are working as a coordinated unit and have support from co-workers who respect their input, they are more likely to feel that the work environment is one where they feel safe discussing errors and reporting unsafe behavior. Similarly, when employees perceive that management supports their daily efforts and provides them with resources and information needed to effectively perform their jobs, safety climate will also be more positive.

Future research should focus on how to improve safety climate through the implementation of programs that would strengthen management and team member support. Previous research conducted by Zohar (2002) reported that injuries could be reduced by improving the monitoring and reward practices of supervisors. This finding suggests that management behavior may be important in communicating the importance of safe behavior. Other interventions to improve safety climate could focus on how managers can better communicate safety as a priority. Improving collaboration among team members may be equally important. As our results indicated, team member support accounted for unique

variance in predicting safety climate. Interventions focused on improving communication, trust and collaboration between co-workers should be explored.

In summary, existing research supports the relationships (indirect and/or direct) between safety climate and various outcome variables (Christian et al., 2009; Clarke, 2006; Olsen, 2010), but this line of research offers little direction into how to address workplace dynamics that would improve safety climate. The current study addresses this issue by examining antecedents of safety climate. As such, it provides some insight into the importance of management and team member support in improving safety climate, which ultimately impacts critical outcome variables.

Limitations

The current study is not without limitations. While support from team members and management may be important in developing perceptions of psychological safety, there are other antecedent factors that should also be considered. For example, Neal et al. (2000) reported a significant impact of organizational climate on safety climate using a combined scale incorporating seven different characteristics of the work environment. Future studies might separately focus on one or more of these factors, such as role clarity and goal congruency, which would help create a more complete understanding of precursors to safety climate. While the findings with respect to management and team member support provide some insight into how safety climate impacts employee attitudes, further research should incorporate other outcome variables to test the robustness of the model. Research incorporating turnover, patient satisfaction, accidents, and injuries would strengthen the findings of the current study.

The current study used only a single hospital as the unit of study. This limitation raises potential questions of generalizability across hospitals and even across industries where safety is a concern. More research needs to be done to explore the antecedents and outcomes of psychological safety across multiple organizations and industries. It is possible that hospitals present unique circumstances and challenges that would make management and team member support more important. Future research should focus on replicating the finding in other industries and across multiple hospitals.

Note

1. To ensure that there was no confounding effect of experience for the physician groups that was discussed on page 11, the conditional process analyses were run with medical staff only as well as with the sample that

included residents and interns. The pattern of results for medical staff only was the same as that found when medical staff and residents/interns was combined. The analysis presented here contains the combined sample.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

- Babin, B. J., & Boles, J. S. (1996). The effects of co-worker involvement and supervisor support on service provider role stress, performance and job satisfaction. *Journal of Retailing*, 72(1), 57–75. doi:10.1016/S0022-4359(96)90005-6
- Banks, G. C., Batchelor, J. H., Seers, A., O'Boyle, E. H., Pollack, J. M., & Gower, K. (2014). What does team-member exchange bring to the party? A meta-analytic review of team and leaders social exchange. *Journal of Organizational Behavior*, 35(2), 273–295. doi:10.1002/job.1885
- Baruch-Feldman, C., Brondolo, E., Ben-Dayan, D., & Schwartz, J. (2002). Sources of social support and burnout, job satisfaction, and productivity. *Journal of Occupational Health Psychology*, 7(1), 84–93. doi:10.1037/1076-8998.7.1.84
- Beus, J. M., Payne, S. C., Bergman, M. E., & Arthur, W. (2010). Safety climate and injuries: An examination of theoretical and empirical relationships. *The Journal of Applied Psychology*, 95(4), 713–727. doi:10.1037/a0019164
- Christian, M. S., Bradley, J. C., Wallace, J. C., & Burke, M. J. (2009). Workplace safety: A meta-analysis of the roles of person and situation factors. *The Journal of Applied Psychology*, 94(5), 1103–1127. doi:10.1037/a0016172
- Clarke, S. (2006). The relationship between safety climate and safety performance: A meta-analytic review. *Journal of Occupational Health Psychology*, 11(4), 315–327. doi:10.1037/1076-8998.11.4.315
- Clarke, S. (2010). An integrative model of safety climate: Linking psychological climate and work attitudes to individual safety outcomes using meta-analysis. *Journal of Occupational and Organizational Psychology*, 83(3), 553–578. doi:10.1348/096317909X452122
- Coburn, D. (1992). Friedson then and now: An “internalist” critique of Friedson's past and present views of the medical profession. *International Journal of Health Services*, 22(3), 497–512. doi:10.2190/2770-T9PJ-8CP2-T59W
- Colla, J. B., Bracken, A. C., Kinney, L. M., & Weeks, W. B. (2005). Measuring patient safety climate: A review of surveys. *Quality and Safety in Health Care*, 14, 364–366. doi:10.1136/qshc.2005.014217
- Davenport, D. L., Henderson, W. G., Mosca, C. L., Khuri, S. F., & Mentzer, R. M. (2007). Risk-adjusted morbidity in teaching hospitals correlates with reported levels of communication and collaboration on surgical teams but not with scale measures of teamwork climate, safety climate, or working conditions. *Journal of the American College of Surgeons*, 205(6), 778–784. doi:10.1016/j.jamcollsurg.2007.07.039
- Dejoy, D. M., Della, L. J., Vandenberg, R. J., & Wilson, M. G. (2010). Making work safer: Testing a model of social exchange and safety management. *Journal of Safety Research*, 41(2), 163–171. doi:10.1016/j.jsr.2010.02.001
- Derickson, R., Fishman, J., Osatuke, K., Teclaw, R., & Ramsel, D. (2015). Psychological safety and error reporting within veterans health administration hospitals. *Journal of Patient Safety*, 11(1), 60–66. doi:10.1097/PTS.0000000000000082
- Donald, I., & Canter, D. (1993). Attitudes to safety: Psychological factors and the accident plateau. *Health Safety Information Bulletin*, 215, 5–8.
- Ducharme, L. J., & Martin, J. K. (2000). Unrewarding work, coworker support, and job satisfaction. *Work and Occupations*, 27(2), 223–243. doi:10.1177/0730888400027002005
- Dunham, R. B., Grube, J. A., & Castaneda, M. B. (1994). Organizational commitment: The utility of an integrative definition. *The Journal of Applied Psychology*, 79(3), 370–380. doi:10.1037/0021-9010.79.3.370
- Edmondson, A. C., Higgins, M., Singer, S., & Weiner, J. (2016). Understanding psychological safety in health care and education organizations: A comparative perspective. *Research in Human Development*, 13(1), 65–83. doi:10.1080/15427609.2016.1141280
- Eisenberger, R., & Stinglhamber, F. (2011). *Perceived organizational support*. Washington, DC: American Psychological Association.
- Fewster-Thunte, L., & Velsor-Friedrich, B. (2008). Interdisciplinary collaboration for healthcare professionals. *Nursing Administration Quarterly*, 32(1), 40–48. doi:10.1097/01.NAQ.0000305946.31193.61
- Flin, R. (2007). Measuring safety culture in healthcare: A case for accurate diagnosis. *Safety Science*, 45, 653–667. doi:10.1016/j.ssci.2007.04.003
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25, 161–178. doi:10.2307/2092

- Hahn, S. E., & Murphy, L. R. (2008). A short scale for measuring safety climate. *Safety Science*, 46, 1047–1066. doi:10.1016/j.ssci.2007.06.002
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: The Guilford Press.
- Hayter, A. J. (1986). The Maximum familywise error rate of Fisher's least significant difference test. *Journal of the American Statistical Association*, 81(396), 1000–1004. doi:10.1080/01621459.1986.10478364
- Hofmann, D. A., & Mark, B. (2006). An investigation of the relationship between safety climate and medication errors as well as other nurse and patient outcomes. *Personnel Psychology*, 59(4), 847–869. doi:10.1111/j.1744-6570.2006.00056.x
- Huang, Y., Lee, J., McFadden, A. C., Murphy, L. A., Robertson, M. M., Cheung, J. H., & Zohar, D. (2016). Beyond safety outcomes: An investigation of the impact of safety climate on job satisfaction, employee engagement and turnover using social exchange theory as the theoretical framework. *Applied Ergonomics*, 55, 248–257. doi:10.1016/j.apergo.2015.10.007
- Jones, A. P., & James, L. R. (1979). Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions. *Organizational Behavior and Human Performance*, 23(2), 201–250. doi:10.1016/0030-5073(79)90056-4
- Judge, T. A., & Kammeyer-Mueller, J. D. (2012). Job attitudes. *Annual Review of Psychology*, 63, 341–367. doi:10.1146/annurev-psych-120710-100511
- Kath, L. M., Magley, V. J., & Marmet, M. (2010). The role of organizational trust in safety climate's influence on organizational outcomes. *Accident Analysis & Prevention*, 42(5), 1488–1497. doi:10.1016/j.aap.2009.11.010
- Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (2000). *To err is human: Building a safer health system* (pp. 1–34). Washington, DC: National Academies Press.
- Kuenzi, M., & Schminke, M. (2009). Assembling fragments into a lens: A review, critique, and proposed research agenda for the organizational work climate literature. *Journal of Management*, 35(3), 634–717. doi:10.1177/0149206308330559
- Kula, S., & Guler, A. (2014). Influence of supervisor support on job satisfaction levels: An evaluation of Turkish national police (TNP) officers in the Istanbul police department. *International Journal of Criminal Justice Studies*, 9(2), 209–224.
- Kurtessis, J. N., Eisenberger, R., Ford, M. T., Buffardi, L. C., Stewart, K. A., & Adis, C. S. (2017). Perceived organizational support: A meta-analytic evaluation of organizational support theory. *Journal of Management*, 43(6), 1854–1884. doi:10.1177/0149206315575554
- Liden, R. C., Wayne, S. J., & Sparrow, R. T. (2000). An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *The Journal of Applied Psychology*, 85(3), 407–417. doi:10.1037/0021-9010.85.3.407
- Liu, Y., Keller, R. T., & Shih, H. (2011). The impact of team-member exchange, differentiation, team commitment, and knowledge sharing on R&D project team performance. *R & D Management*, 41(3), 274–287. doi:10.1111/j.1467-9310.2011.00636.x
- Major, D. A., Kozlowski, S., Chao, G. T., & Gardner, P. D. (1995). A longitudinal investigation of newcomer expectations, early socialization outcomes, and the moderating effects of role development factors. *The Journal of Applied Psychology*, 80(3), 418–431. doi:10.1037/0021-9010.80.3.418
- Makary, M., Sexton, J. B., Freischlag, J. A., Holzmüller, C. G., Millman, E. A., Rowen, L., & Pronovost, P. J. (2006). Operating room teamwork among physicians and nurses: Teamwork in the eye of the beholder. *Journal of the American College of Surgeons*, 202(5), 746–752. doi:10.1016/j.jamcollsurg.2006.01.017
- Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnitsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, 61(1), 20–52. doi:10.1006/jvbe.2001.1842
- Neal, A., Griffin, M. A., & Hart, P. M. (2000). The impact of organizational climate on safety climate and individual behavior. *Safety Science*, 34(1–3), 99–109. doi:10.1016/S0925-7535(00)00008-4
- Nembhard, I. M., & Edmondson, A. C. (2006). Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *Journal of Organizational Behavior*, 27(7), 941–966. doi:10.1002/job.413
- Nixon, A. E., Lanz, J. J., Manapragada, A., Bruk-Lee, V., Schantz, A., & Rodriguez, J. F. (2015). Nurse safety: How is safety climate related to affect and attitude? *Work & Stress*, 29(4), 401–419. doi:10.1080/02678373.2015.1076536
- Olsen, E. (2010). Exploring the possibility of a common structural model measuring associations between safety climate factors and safety behavior in health care and petroleum sectors. *Accident Analysis & Prevention*, 42(5), 1507–1516. doi:10.1016/j.aap.2010.02.002
- Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *The Journal of Applied Psychology*, 87(4), 698–714. doi:10.1037/0021-9010.87.4.698
- Rousseau, V., & Aube, C. (2010). Social support at work and affective commitment to the organization: The moderating effect of job resource adequacy and ambient conditions. *The Journal of Social Psychology*, 150(4), 321–340. doi:10.1080/00224540903365380
- Schneider, B., White, S. S., & Paul, M. C. (1998). Linking service climate and customer perceptions of service quality: Tests of a causal model. *The Journal of Applied Psychology*, 83(2), 150–163. doi:10.1037/0021-9010.83.2.150
- Seers, A. (1989). Team-member exchange: A new construct for role-making research. *Organizational Behavior and Human Decision Processes*, 43(1), 118–135. doi:10.1016/0749-5978(89)90060-5
- Sexton, J. B., Holzmüller, C. G., Pronovost, P. J., Thomas, E. J., McFerran, S., Nunes, J., ... Fox, H. E. (2006). Variation in caregiver perceptions of teamwork climate in labor and delivery units. *Journal of Perinatology*, 26, 463–470. doi:10.1038/sj.jp.7211556
- Sexton, J. B., Makary, M. A., Tersigni, A. R., Pryor, D., Hendrich, A., Thomas, E. J., ... Pronovost, P. J. (2006). Teamwork in the operating room: Frontline perspectives among hospitals and operating room personnel. *Anesthesiology*, 105(11), 877–884. doi:10.1097/0000542-200611000-00006

- Stinglhamber, F., & Vandenberghe, C. (2003). Organizations and supervisors as sources of support and targets of commitment: A longitudinal study. *Journal of Organizational Behavior*, 24(3), 251–270. doi:10.1002/job.192
- Tholen, S. L., Pousette, A., & Torner, M. (2013). Causal relations between psychosocial conditions, safety climate and safety behavior – A multilevel investigation. *Safety Science*, 55, 62–69. doi:10.1016/j.ssci.2012.12.013
- Victor, B., & Cullen, J. B. (1988). The organizational bases of ethical work climates. *Administrative Science Quarterly*, 33(1), 101–125. doi:10.2307/2392857
- Wallace, J. C., Popp, E., & Mondore, S. (2006). Safety climate as mediator between foundation climates and occupational accidents: A group-level investigation. *The Journal of Applied Psychology*, 91(3), 681–688. doi:10.1037/0021-9010.91.3.681
- Zohar, D. (2000). A group-level model of safety climate: Testing the effect of group climate on microaccidents in manufacturing jobs. *The Journal of Applied Psychology*, 85(4), 587–596. doi:10.1037/0021-9010.85.4.587
- Zohar, D. (2002). Modifying supervisory practices to improve subunit safety: A leadership-based intervention model. *The Journal of Applied Psychology*, 87(1), 156–163. doi:10.1037/0021-9010.87.1.156
- Zohar, D. (2010). Thirty years of safety climate research: Reflections and future directions. *Accident Analysis & Prevention*, 42(5), 1517–1522. doi:10.1016/j.aap.2009.12.019