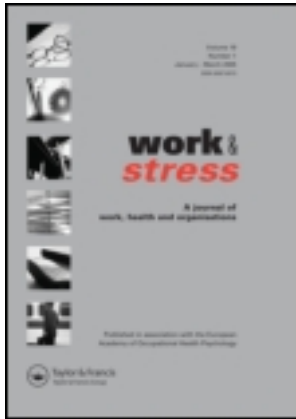


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Inconsistent style of leadership as a predictor of safety behaviour

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Research on the effects of passive rather than transformational styles of leadership is limited, especially regarding safety-related outcomes in the workplace. Both styles of leadership can be exhibited at different times in the same individual; here we refer to this as inconsistent leadership. In this study, we examine the effect of inconsistent safety-specific leadership style on the safety participation and safety compliance of employees. Operationalized as the interaction of safety-specific transformational leadership and passive leadership, inconsistent safety leadership emerged as a significant predictor of both outcomes in two samples in Canada: a sample of 241 young workers and again in a sample of 491 older workers, who were long-term health care employees. We found that a transformational safety-specific leadership style was associated with greater safety compliance and safety participation in employees. Furthermore, in all cases, the predictive effect of transformational style of leadership on safety participation and safety compliance was attenuated when leaders also displayed passive leadership with respect to safety outcomes. Theoretical and practical implications for safety management are discussed.

Keywords: safety-specific transformational leadership; passive leadership; safety participation; safety compliance

Introduction

Organizational leadership is associated with a wide array of outcomes in occupational health psychology (for reviews see Kelloway & Barling, 2010; Mullen & Kelloway, 2010) and one of the most consistent findings points to the role of organizational leadership as a predictor of safety outcomes (see, for example, Barling, Loughlin, & Kelloway, 2002; Kelloway, Mullen, & Francis, 2006; Mullen & Kelloway, 2009; Zohar, 2002a). Much of this research focuses on the positive safety outcomes associated with active and transformational forms of leadership (Kelloway, Sivanathan, Francis, & Barling, 2005).

Data from empirical studies suggest that active, transformational leadership (Bass, 1985) has a positive relationship with a variety of employee safety-related outcomes including employee perceptions of safety climate and safety consciousness (e.g., Barling et al., 2002; Kelloway et al., 2006; Mullen & Kelloway, 2009; Zohar,

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2002a). Alternatively, passive, uninvolved, forms of leadership are generally considered to be the most ineffective styles of leadership (Avolio, 1999; Bass, 1997) and have been associated with decreased business unit performance (Howell & Avolio, 1993) employee well-being (Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007), follower satisfaction with their leader (Judge & Piccolo, 2004) as well as with negative safety outcomes (Kelloway et al., 2006; Zohar, 2002a).

Surprisingly, despite the potential negative outcomes associated with passive forms of leadership, empirical research on the effects of passive leadership remains limited, particularly with respect to safety-related outcomes in the workplace (Judge & Piccolo, 2004; Kelloway et al., 2006). To redress this, the purpose of our study is to empirically examine the effect of both active and passive forms of leadership on employee safety behaviour. In particular, we advance, and empirically evaluate, the hypothesis that leaders who engage in passive leadership attenuate any positive effects of transformational leadership on safety outcomes.

Passive styles of leadership, including *laissez-faire* leadership, have been associated with negative perceptions of safety climate and, indirectly, increased workplace injuries (Zohar, 2002a). Kelloway et al. (2006) extended this analysis by showing that safety-specific transformational leadership and safety-specific passive leadership are, in fact, two distinct entities. Furthermore, they found through hierarchical regressions that safety-specific passive leadership contributed incrementally to the prediction of safety outcomes over and above the prediction obtainable from transformational leadership. Implicit in their analysis is the suggestion that a leader can be both transformational and passive with respect to safety leadership. That is, although it is common to speak of “transformational leaders”, there is little evidence that leadership is trait-like or constant within an individual.

Indeed, Kelloway et al. (2006) argued that measures of leadership are frequency-based (in the case of transformational and passive leadership) and it is plausible that individual leaders could alternate transformational and passive leadership styles or display both types of leadership to individual employees. We label this phenomenon, wherein leaders are seen as being both transformational and passive, as “inconsistent leadership” and the primary intent of the current manuscript is to examine the effect of inconsistent leadership on safety behaviours.

We base our analyses on two samples, one of young workers and one of older workers employed in health care settings. We suggest that this is an important design consideration because young workers aged between 15 and 24 are now participating in the paid labour force at an unprecedented rate (Loughlin & Barling, 1999, 2001). These early employment experiences have substantial formative and developmental implications for individuals (for a review see Frone, 1999), their employing organizations, and society at large (Kelloway & Barling, 2000).

However, youth employment is also dangerous. Through such employment experiences young people are also exposed to the hazards of adult employment including issues of work stress (Loughlin & Lang, 2005); substance use (Wu, Schlenger, & Galvin, 2003), workplace aggression, violence and bullying (Tucker & Loughlin, 2006; Vaez, EkBerg, & LaFlamme, 2004) and occupational health and safety (Castillo, 1999; Frone, 1999; White & O'Donnell, 2001). With regard to the latter, a consistent finding in the research literature is that young workers experience more injuries, but fewer fatal injuries, than do their older counterparts (Castillo, 1999; Centre for Disease Control and Prevention, 2001; Dupre, 2000; Human

Resources Development Canada, 2000; Kraus, 1985; National Institute of Occupational Safety and Health, 1995, 1997; Salminen, 2004). There are also data suggesting that younger workers tend to experience more serious injuries, with a greater likelihood for need for surgical intervention, than do older workers (Ehrich, MacClellan, Hemkamp, Islam, & Ducatman, 2004).

We suggest that statistics such as these justify a specific focus on the safety-related experiences of young workers. However, we also suggest that it is important to directly compare findings across samples of younger and older employees in order to discern what, if anything, is unique about the experiences of young workers. Accordingly in the current study, we examine our hypotheses first in a sample of young workers and then in a sample of more traditional full-time employees, thereby allowing us to determine whether our predictions hold up across two samples.

Taken together, our study extends previous research (e.g., Barling et al., 2002; Kelloway et al., 2006) by examining the effects of both transformational and passive leadership on safety participation and safety compliance. We develop hypotheses about the process through which leadership impacts on safety behaviour, specifically suggesting that the two forms of leadership interact to predict safety behaviours.

Safety leadership

Unlike studies that have examined the relationship between leadership and safety using Bass's (1985) general notion of transformational leadership, the leadership construct used in this study reflects the manner in which leaders specifically focus on safety-related issues in the workplace. Barling et al. (2002) suggest that the four dimensions of transformational leadership (idealized influence, inspirational motivation, individualized consideration, and intellectual stimulation) are relevant to the improvement of workplace safety. Idealized influence encourages leaders to become role models by doing what is right (i.e., focusing on safety), rather than what is profitable (i.e., focusing on performance pressures). Furthermore, leaders demonstrate inspirational motivation when they challenge individuals to go beyond their needs for the collective good and to achieve a level of safety performance that surpasses the minimum safety standards or that was once perceived to be unattainable. Intellectual stimulation encourages leaders to challenge employees to develop innovative solutions to safety related issues. Finally, individualized consideration encourages leaders to show personal concern for employee safety and well-being. Thus, a safety-specific transformational leader engages in behaviour that is characteristic of the components of transformational leadership, yet specifically focused on inspiring and promoting positive safety-related attitudes and behaviours in the workplace. Mullen and Kelloway (2009) reported on a training intervention designed to increase safety-specific transformational leadership; they found that the intervention resulted in enhanced employee perceptions of leadership and in improved safety outcomes among the employees of the trained leaders.

The focus on active forms of leadership such as transformational leadership highlights a recent shift in safety management that extends beyond traditional approaches to managing workplace safety such as job redesign (Chhokar & Wallin, 1984), technical aspects of engineering systems (Kanki, Lozito, & Foushee, 1989), and safety compliance approaches (Zohar, 2002a). A transformational leadership-based approach shifts the focus from control-based safety practices that increase

compliance through rewards and punishment (Barling & Hutchinson, 2000) to an approach in which the leader develops and communicates a vision for a safe workplace and inspires all organizational members to actively participate in occupational health and safety practices. Organizational members are motivated to create and sustain a safe work environment because they believe in the value of safe work practices, rather than complying with policies to avoid punishment.

Researchers have distinguished the higher-order active, transformational leadership factor from passive styles of leadership (Bass, 1985; Howell & Avolio, 1993; Kelloway et al., 2005; Kelloway et al., 2006) including laissez-faire leadership (Avolio, 1999; Hater & Bass, 1988) and management-by-exception (passive) leadership (Bass & Avolio, 1997; Howell & Avolio, 1993). Laissez-faire leadership is the absence of leadership and the disregard of supervisory responsibilities (Bradford & Lippitt, 1945) and has also been described as leader inaction, being unavailable when needed by employees, failure to clarify performance expectations, and avoidance of both decision-making and leadership responsibilities (Bass, 1990; Hater & Bass, 1988; Judge & Piccolo, 2004). Management-by-exception (passive) leadership as described in the full range transformational leadership theory (Bass & Avolio, 1997) is characterized by leaders who wait until performance issues become serious before they take corrective action (Bass, 1985, 1990). These forms of passive leadership are generally considered to be the most ineffective and inactive forms of leadership (Bass & Avolio, 1994; Katz, Macoby, Gurin, & Floor, 1951). Studies suggest that laissez-faire and management-by-exception leadership have negative relationships with follower performance and work quality (Argyris, 1954; Murnighan & Leung, 1976), follower job satisfaction and motivation (Judge & Piccolo, 2004), follower well-being (Skogstad et al., 2007), follower satisfaction with their leader (Judge & Piccolo, 2004), follower commitment (Den Hartog, Van Muijen, & Koopman, 1997) and business unit performance (Howell & Avolio, 1993).

Researchers have combined the passive leadership dimensions into a single higher-order factor (Den Hartog et al., 1997; Kelloway et al., 2006) due to the positive correlations found between Bass and Avolio's (1990) management-by-exception (passive) leadership and laissez-faire leadership. The higher-order passive leadership factor is empirically distinct and negatively correlated with transformational leadership (Kelloway et al., 2006). Thus, for the purpose of the current study, the single higher-order factors of both safety-specific transformational leadership (idealized influence, inspirational motivation, individualized consideration, intellectual stimulation) and passive leadership (laissez-faire, management-by-exception (passive) leadership behaviour are examined.

Safety behaviour

To extend previous safety leadership models, we also examine two forms of safety behaviour. Based on Borman and Motowidlo's (1993) model of job performance, Neal and Griffin (1997) proposed a model of safety performance that distinguishes between two dimensions of safety behaviour, namely, safety compliance and safety participation. Safety compliance involves carrying out required behaviours that maintain workplace safety such as following safety procedures and wearing protective safety equipment (Neal & Griffin, 2006). Safety participation involves behaviours that indirectly contribute to developing a safe work environment such as

employee initiative to voluntarily participate in safety activities and programmes (Cree & Kelloway, 1997), helping co-workers with safety problems, promoting the safety programs and policies, attending safety meetings (Neal, Griffin, & Hart, 2006) and raising safety issues with managers (Mullen, 2005). The important distinguishing factor lies in the fact that compliance with safety policies is enforced and directly affects individual safety, whereas participation is voluntary, initiated by employees and indirectly contributes to personal safety by creating a supportive safety environment (Neal & Griffin, 2006).

Although not focusing on transformational leadership, recent studies suggest that leadership behaviours similar to those described by transformational leadership theory are associated with employee safety compliance and safety participation. Leaders who act consistently in a safety-specific transformational manner do so by communicating high expectations regarding safety, show an interest in the safety of employees, and encourage employees to develop innovative ways to improve current safety practices. Researchers have demonstrated the positive effects of supportive leadership on task (e.g., safety compliance) and contextual (e.g., safety participation) performance (e.g., Hofmann & Morgeson, 1999). For example, Mullen (2005) found that employees reported a greater willingness to voluntarily raise safety issues with management (e.g., safety participation) when they perceived the managers to be supportive of them and open to listening to their ideas regarding safety issues. In an examination of high-quality relationships between leaders and subordinates, Hofmann, Morgeson, and Gerrass (2003) found that high-quality social exchanges between leaders and employees resulted in employees perceiving safety as part of their job responsibilities, which in turn, predicted safety citizenship behaviour. The link between high-quality leader social exchange and employee safety role definitions was moderated by safety climate, such that role definitions were expanded to include safety only when a positive safety climate existed. Researchers have also suggested that supportive leadership increases proactive behaviour, which is described as individuals taking the initiative to bring about meaningful change in the workplace (Crant, 1995).

The current study

In the current study, we examine the effects of safety-specific leadership on the prediction of safety behaviours (compliance and participation). Based on the results reported by Kelloway et al. (2006) we hypothesized that:

Hypothesis 1: Transformational safety-specific leadership will positively predict safety compliance and safety participation.

Hypothesis 2: Passive safety-specific leadership will negatively predict safety compliance and safety participation.

Implicit in the literature, and made explicit by Kelloway et al. (2006), is the suggestion that leaders are not *either* “transformational” or “passive”. Rather, leaders engage in transformational or passive behaviours at different frequencies. Empirically, this means that the two leadership styles are negatively correlated but are not mutually exclusive. This gives rise to the possibility that a leader might be

seen as being both transformational and passive (e.g., a leader may alternate between the two leadership styles or be inconsistent in the use of a given leadership style). We suggest that such inconsistency will diminish the generally positive effects of transformational leadership. Specifically, we define inconsistent leadership as the interaction of passive and safety-specific transformational leadership and hypothesize that:

Hypothesis 3: Inconsistent safety-specific leadership will predict both safety compliance and safety participation such that individuals who see their leaders as engaging in both high levels of safety-specific transformational leadership and high levels of safety-specific passive leadership and will report lower levels of safety compliance and safety participation than individuals who see their leaders as engaging in high levels of transformational and low levels of passive safety-specific leadership.

All hypotheses were tested in a sample of young workers, and again in a sample of older workers employed in a health care setting.

Method

Participants

Data for this study were obtained from two samples. Sample A was a sample of 241 young workers. The sample consisted of 122 women and 119 men from business and psychology university programmes in Canada. Participants were approximately 20 years of age ($M = 20.1$, $SD = 2.9$) and all held jobs in a variety of industries (11.6% office and clerical, 23.7% retail, 2.9% technology, 4.6% research, 1.2% finance, 26.1% customer service representatives, 27% other). Participants worked an average of 21.5 ($SD = 12.1$) hours per week. The average length of their employment was approximately two years ($M = 2.1$, $SD = 2.9$).

Sample B was a sample of health care workers recruited from 66 long-term health care organizations in Canada. A total of 1822 employees were identified and invited to participate. Of the 1822 individuals, 494 participated in the study resulting in a 27.2% response rate. Due to listwise deletion of missing data, a sample of 491 employees was retained. It consisted of 455 women (approximately 92%) and 36 men. The average age of participants was 42.5, $SD = 10.8$; employed an average of 9.8 years, $SD = 8.7$ and worked an average of 35.6 hours per week, $SD = 7.4$.

Measures

Participants in both samples completed the same measures. All items for each of the following measures were rated using a 7-point response scale ranging from 1 = strongly disagree to 7 = strongly agree.

Safety-specific transformational leadership. Employee perceptions of safety-specific transformational leadership were assessed with Barling et al.'s (2002) 10-item measure (Sample A $\alpha = .92$; Sample B $\alpha = .94$). For example, "My direct manager talks about his/her values and beliefs of the importance of safety."

Passive leadership. Employee perceptions of passive safety leadership were assessed using Kelloway et al.'s (2006) three-item measure of passive leadership (Sample A $\alpha = .77$; Sample B $\alpha = .84$). An example is, "My direct manager waits for things to go wrong before taking action."

Safety participation was assessed using Neal et al.'s (2000) four-item safety participation scale (Sample A $\alpha = .79$; Sample B $\alpha = .71$). An example of one of the items is, "I voluntarily perform tasks that help improve workplace safety."

Safety compliance was assessed with Neal et al.'s (2000) four-item safety compliance scale (Sample A $\alpha = .90$; Sample B $\alpha = .87$). An example item is "I use the correct safety procedures for my job."

Results

Descriptive statistics and intercorrelations for all study variables are presented in Table 1.

To assess our hypotheses, we conducted moderated regression analyses predicting both safety compliance and safety participation. After centring the two predictors (safety-specific transformational and passive leadership) we computed the interaction as the cross-product of the two predictors. In the regression analyses, the main effects of leadership were entered on step one along with demographic controls (e.g., gender, age, number of hours worked per week) with the interaction term being entered on step two. Results of these analyses are shown in Table 2. For the health care sample, all analyses were repeated as a multilevel regression with individual respondents nested in sites. The results for all hypotheses were the same as for standard regressions so we report only the latter analyses here.

As shown, in both Sample A and Sample B, safety specific transformational leadership offered a significant unique prediction of both safety participation (Sample A: $\beta = .55$, $p < .01$; Sample B: $\beta = .29$, $p < .01$) and safety compliance (Sample A: $\beta = .35$, $p < .01$; Sample B: $\beta = .23$, $p < .01$) thereby supporting Hypothesis 1. Safety compliance (Sample A: $\beta = -.13$, $p < .05$; Sample B: $\beta = -.11$, $p < .05$) but not safety participation was negatively predicted by passive leadership, offering partial support for Hypothesis 2. Finally, inconsistent leadership (i.e., the interaction of transformational and passive leadership) emerged as a significant predictor of both safety participation (Sample A $\beta = -.11$, $p < .05$;

Table 1. Descriptive statistics and intercorrelations for all study variables.

| Variable | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | <i>M</i> | <i>SD</i> |
|---------------------------------------|----------|-----------|--------|--------|--------|--------|----------|-----------|
| 1. Transformational safety leadership | 4.16 | 1.38 | | -.52** | .29** | .24** | 4.56 | 1.24 |
| 2. Passive leadership | 2.89 | 1.40 | -.33** | | -.15** | -.17** | 2.39 | 1.44 |
| 3. Safety participation | 4.50 | 1.25 | .54** | -.17** | | .41** | 5.52 | 0.92 |
| 4. Safety compliance | 5.38 | 1.21 | .39** | -.27** | .51** | | 6.09 | 0.78 |

Note: Sample A ($N = 241$) below the diagonal. Sample B ($N = 491$) above the diagonal.

** $p < .01$.

Table 2. Results of the moderated regression analysis.

| Predictor | Participation | | Compliance | |
|-----------------------------|---------------|---------|--------------|---------|
| | ΔR^2 | β | ΔR^2 | β |
| <i>Sample A</i> | | | | |
| Step 1 | .30** | | .22** | |
| Step 2 | .01* | | .05** | |
| Age | | .02 | | .06 |
| Gender | | .00 | | -.15** |
| Hours worked | | -.05 | | -.12* |
| Transformational leadership | | .55** | | .35** |
| Passive leadership | | .02 | | -.13** |
| Interaction | | -.11 | | -.22** |
| <i>Sample B</i> | | | | |
| Step 1 | .11** | | .07** | |
| Step 2 | .01* | | .02** | |
| Age | | .16** | | .06 |
| Gender | | .01 | | .00 |
| Hours worked | | .04 | | -.07 |
| Transformational leadership | | .29** | | .23** |
| Passive leadership | | -.04 | | -.11* |
| Interaction | | -.10* | | -.12** |

Note: * $p < .05$; ** $p < .01$.

Sample B: $\beta = -.10$, $p < .01$) and safety compliance (Sample A $\beta = -.22$, $p < .01$; Sample B: $\beta = -.13$, $p < .01$) in both samples, thereby supporting Hypothesis 3. For sample A (the young workers) the interaction terms incrementally explained 1.2% of the variance in safety participation and 5.0% of the variance in safety compliance. For the sample of older workers (Sample B) the interaction incrementally explained 1% of the variance in safety participation and 1.5% of the variance in safety compliance.

To explore the form of the interactions, we plotted the simple slopes for transformational leadership at high and low (1 *SD* above and below the mean) levels

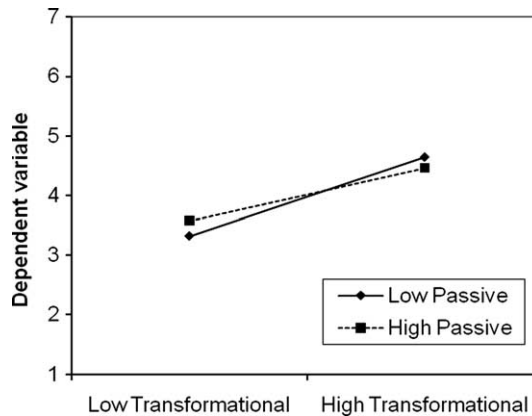


Figure 1. Interaction of safety-specific transformational leadership and passive leadership predicting safety participation for young workers (Sample A).

of passive leadership. As shown in Figure 1, in each case the form of the interaction was similar in that the effect of transformational leadership was attenuated for high levels of passive leadership. Additional figures, illustrating the interactive effect for transformational leadership and passive leadership, are available upon request from the authors.

Discussion

The purpose of this study was to examine the effect of different safety-specific leadership styles on the safety behaviours of employees in two samples: a sample of young workers and a sample of “adult” workers. Consistent with previous research (e.g., Barling et al., 2002; Kelloway et al., 2006; Mullen & Kelloway, 2009), safety-specific transformational leadership predicted both safety compliance and safety participation in both samples, thus supporting our first hypothesis. Passive safety-specific leadership (Kelloway et al., 2006) was negatively associated with safety compliance but not safety participation in both samples, thereby partially supporting the second hypotheses. Finally, hypothesis three was fully supported in that the interaction of safety-specific transformational leadership and safety-specific passive leadership predicted both safety participation and safety compliance for both young workers and the adult sample. In general, the effects itemized here were stronger for younger workers than for the sample of older, health care workers.

We believe that our research makes several important theoretical contributions to the literature. In particular, our results extend the safety literature (e.g., Kelloway et al., 2006; Neal & Griffin, 1997, 2002, 2006) by illustrating how the style of safety-specific leadership impacts on safety compliance and safety participation. Empirical support was provided for the hypothesized relationships between safety-specific transformational leadership and safety behaviour. The findings suggest that safety-specific transformational leadership is associated with higher levels of employee compliance with safety rules and regulations, in addition to higher levels of safety participation. Under the guidance of a safety transformational leader, employees are more likely to take the initiative to promote safety in their workplace and exert effort to make the workplace a safe environment. Leaders who show concern for the safety and well-being of their employees, and promote their personal values and beliefs about the importance of safety ultimately help to develop employees who want to participate in safety activities. Safety-specific transformational leadership shifts the focus away from managing through the enforcement of safety rules and regulations, to the development of safety initiative among employees. Furthermore, the hypothesized relationships generalized to both young workers and adult workers.

The findings also show how passive (uninvolved) safety leadership negatively impacts on employee safety compliance and safety participation behaviour. Leaders who avoid making decisions about safety actively destroy workplace safety, such that employees are less likely to comply with safety rules. Perhaps more importantly, our results suggest that passive safety-specific leadership in a leader (e.g., avoiding decisions, not dealing with safety issues as they arise), attenuates the effects of their transformational leadership behaviour. Our results support the suggestion that it is not enough for leaders to promote safety episodically or on an occasional basis; rather, safety behaviours are most encouraged when leaders engage in

transformational safety leadership behaviours consistently. In the light of these findings, it is important for organizational leaders to recognize that being uninvolved in safety has negative implications for the safety and well-being of the employees within their respective organizations.

In the light of the growing recognition of safety concerns related to young workers, our use of two samples allows us to directly contrast the effects of safety leadership for young and “adult” workers. The patterns of relationships between safety-specific leadership style and safety behaviours were the same for both samples, suggesting that leadership style has the same effects on safety behaviours for younger and older workers. However, we were also struck by the apparent differences in the magnitude of effects; in all cases, the effects were stronger for the young workers than for the older sample. These findings suggest that, although safety leadership style is important for all workers, the role of the leader in promoting safety is particularly salient for young workers. This observation is also consistent with qualitative data suggesting that young workers express a desire to be seen as a “good worker” and are strongly motivated to comply with supervisors’ directives (Mullen, 2004).

Implications for practice

The findings of this research have meaningful and practical implications for safety management within organizations. The study demonstrates the effectiveness of a transformational leadership style of behaviour in relation to safety that is aimed at developing positive safety behaviours. Typical approaches to safety management that are designed to increase compliance through rewards, incentives or feedback (e.g., Zohar, 2002b) result in improved working and safety conditions. However, occupational injuries continue to prevail in organizations (National Safety Council, 2003). Although it is recognized that compliance and contingent reward approaches are important components of safety management (Komaki, 1998) and should be continued, interventions aimed at developing safety initiative among employees as a means for improving workplace safety is promising.

Leaders are not always able to continuously monitor subordinate safety behaviour (Mullen, 2004), which is a necessary element of the transactional contingent reward model (e.g., reward contingent on safe behaviour). Furthermore, reward-based models may promote undesired safety behaviour such as under-reporting injuries and accidents in order to maintain excellent safety records (Mullen, 2004). Safety-specific transformational leadership approaches provide an alternative to the reward-based safety model, such that continuous monitoring of employee safety behaviour and the provision of rewards is not necessary for bringing about positive safety outcomes. Rather than relying only on a transactional contingent reward approach to ensure safety compliance, positive safety outcomes are enhanced through safety-specific transformational leadership behaviours, such that leaders become role models by focusing on safety and promoting the importance of safe work practices. In this way leaders inspire and motivate individuals to voluntarily perform beyond minimum safety requirements and to work safely at all times. Safety-specific transformational leaders challenge individuals to develop innovative ways for approaching and solving safety-related issues to improve the overall safety of their coworkers and the work environment. Finally, safety leaders also show concern for the health and safety of individuals.

Potential limitations and future research

There are several limitations that must be addressed. First, the cross-sectional nature of the studies limits the explanatory power of the findings from the analysis, and reverse causality may explain some of the relationships in the model. Longitudinal and experimental studies examining the effects of leadership on safety attitudes and behaviour are warranted to establish causal relationships. We note that when such studies have been conducted (e.g., Mullen & Kelloway, 2009) they support the effect of safety leadership as a predictor of safety outcomes.

Second, the reliance on survey data raises the possibility of mono-method bias as a competing explanation. We note that mono-method bias is a potential explanation of the main effects reported here, but it is unlikely to account for the significant interactions. Siemsen, Roth, and Olievera (2010) showed that the effect of common method variance can be to either inflate or deflate parameter estimates and, importantly, showed that common method variance cannot result in quadratic or interactive effects.

Finally, we note that, consistent with previous research (e.g., Aiken & West, 1991), the magnitude of the interactive effects we report is small. Previous studies have suggested that interactive effects rarely account for more than 3% of the variance and some commentators suggest that effects that account for more than 1% of criterion variance should be taken seriously even if non-significant (Aiken & West, 1991). We agree with these observations but also emphasize the replication of the interactive effect across criteria and across samples; we suggest that such replicability is the best test of the substantive nature of the effects we report.

In addition to addressing these concerns, there are several implications of our work for future research. For example, future research should also incorporate safety outcome measures at the organizational level to assess the effects of active and passive leadership. Barling, Weber, and Kelloway (1996), for example, found that general transformational leadership training leads to improved financial outcomes for the organization. Thus, future researchers may also consider examining the safety-related financial outcomes of leadership training, such as reductions in workers' compensation costs, or in the costs associated with employees being away from work as a result of a work-related injury.

Taken together, the results reported here contribute to our understanding of the processes through which safety leadership affects safety-related outcomes within organizations. The findings have important implications for safety practitioners, suggesting a shift in the way safety is managed and a need for increased safety initiative in organizations. Furthermore, the replication of effects across samples provide empirical support for the increased need for leaders to become champions of safety (Kelloway et al., 2005), rather than taking a passive, uninvolved approach. Overall, these findings suggest that organizational leaders, safety practitioners, and researchers must recognize the importance of taking an active and involved approach to safety in the workplace.

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