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SAFETY-SPECIFIC TRANSFORMATIONAL AND PASSIVE LEADERSHIP STYLES: A CONTRIBUTION TO THEIR MEASUREMENT

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Research concerning the effects of leadership on work safety is characterized by two biases: a) in spite of its potential negative impact, passive leadership is understudied; b) general rather than specific measures of leadership are typically used, with the risk of not fully capturing the effects of superiors' behaviors on safety. Two studies examined the reliability and validity of an Italian version of two scales measuring safety-specific transformational and passive leadership, as proposed by Kelloway, Mullen, and Francis (2006). In Study 1, 340 workers from the manufacturing sector completed a questionnaire with the original items previously translated into Italian. Exploratory factor analysis revealed content ambiguity in one item and led to its reformulation. In Study 2, 216 construction workers completed a questionnaire with the adapted scales and a measure of safety climate. Results provided evidence of reliability as well as convergent and concurrent validity of the adapted scales.

Key words: Safety-specific transformational leadership; Safety-specific passive leadership; Safety climate; Safety-critical organization; Scale validation.

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Abundant literature suggests that leaders play a key role in influencing health and safety outcomes in the workplace (e.g., Fernández-Muñiz, Montes-Peón, & Vázquez-Ordás, 2014; Giorgi et al., 2015; Hofmann & Morgeson, 1999; Kelloway, Mullen, & Francis, 2006; Toderi, Gaggia, Balducci, & Sarchielli, 2015; Zohar, 2002). Assuming the theoretical framework developed by Griffin and Neal (2000), leadership represents a distal antecedent of the individual safety performance, which, in turn, is meant to affect organizational safety records in terms of accident and injury rates. This causal chain has received some support from meta-analytic studies (e.g., Christian, Bradley, Wallace, & Burke, 2009).

In one of the first empirical studies focusing on leadership behaviors and safety, Hofmann and Morgeson (1999) observed that employees who perceived a high quality relationship with their superiors were more likely to raise safety concerns and were more committed to safety at their workplace, which in turn contributed to less occupational accidents. Since the 2000s, interest in leadership as an antecedent of employees' safety perceptions, attitudes and behaviors has increased, emphasizing the positive influence of the active forms like transformational and, to a lesser extent, transactional leadership (Clarke, 2013; Hoffmeister et al., 2014). In contrast, research on the effects of passive rather than active styles of leadership remains limited, especially regarding safety-related outcomes (Kelloway et al., 2006). In addition, as noted by some authors, most existing research tends to adopt general rather than safety-specific leadership measures — reflecting the manner in which leaders specifically focus on safety-related issues in the workplace (Mullen, Kelloway, & Teed, 2011) — often assuming the view that leadership is trait-like or constant within an individual (Griffin & Hu, 2013). Both overlooking the impact of passive leadership on safety outcomes and the scarce use of safety-specific leadership measures can be seen as serious shortcomings in research, particularly with respect to the understanding of safety dynamics in the so-called "safety-critical organizations,"[1] such as those in the construction industry. In fact, while active leaders tend to monitor subordinates' behavior and anticipate problems, passive leaders wait until the behavior has created problems before taking any action. This is a crucial difference for such organizations as major accidents may be averted through the proactive monitoring and correction of errors before they lead to problems. Thus, passive leadership is meant to have negative and incremental — as opposed to null — effects on safety at work (Kelloway et al., 2006).

In recognizing this theoretical insight together with the shortcomings pointed out above, this study concentrates on work by Kelloway et al. (2006), and on the scales they proposed (safety-specific transformational and passive leadership), whose characteristics are investigated in two samples of Italian workers. To the best of our knowledge, those proposed by Kelloway and colleagues are the only safety-specific measures based on the full-range leadership theory (Bass & Avolio, 1997) present in the safety leadership literature. The scales' validity and reliability properties have not received much empirical support as yet, especially with samples from work environments in which safety is critical, such as construction workers (Eurostat, 2014; Swuste, Frijters, & Guldenmund, 2012). In the following section, we review the constructs of safety leadership derived from the full-range leadership model, focusing attention on the development of safety-specific measures and their links with safety outcomes as emerged from literature.

ACTIVE AND PASSIVE SAFETY LEADERSHIP: CONCEPTS AND MEASURES

As noted above, the majority of research interested in leadership as an antecedent of safety outcomes in the workplace emphasized the positive influence of transformational leadership (e.g., Barling, Loughlin, & Kelloway, 2002; Zohar & Luria, 2004). Transformational leadership has been defined as "the interplay between leaders and followers in which each raises the other to a higher level of ethics, morality and motivation" (Landy & Conte, 2010, p. 561). Transformational leaders are theorized to influence subordinates through four core behavioral aspects: a) individualized consideration (i.e., leader shows interest in followers' personal and professional development and listens to their needs and concerns); b) idealized influence (i.e., the degree to which subordinates look to the leader as an example and seek to emulate him/her); c) inspirational motivation (i.e., leader inspires others toward goals, and provides meaning, optimism, and enthusiasm); d) intellectual stimulation (i.e., leader challenges assumptions, inspiring employees to think creatively and innovatively). Differently, transactional leadership focuses on compliance with contractual obligations by establishing objectives and monitoring and controlling the results (Bass & Avolio, 1997). According to Bass (1985), transactional leaders recognize what actions subordinates must take to achieve outcomes and clarify these role and task requirements, so that subordinates are confident in exerting necessary efforts to fulfil leader expectations. One aspect of transactional leadership that has hardly featured in safety research is contingent reward (i.e., leaders clarify expectations and rewards in exchange for followers meeting expectations) (Clarke, 2013). Contingent reward has demonstrated positive effects on safety climate, leading to reduced incidence of injuries (Zohar, 2002). Furthermore, in Zohar's study the effects of contingent reward were closely aligned to those of transformational leadership, and these two aspects of leadership were strongly correlated, in line with the findings in the general leadership literature (Bycio, Hackett, & Allen, 1995). Based on a strong correlation between transformational leadership and contingent reward, Barling et al. (2002) proposed the safety-specific transformational leadership scale. The measure comprises 10 representative items derived from the two leadership dimensions (transformational and contingent reward), which were modified to ensure appropriateness for the occupational safety context. Thus, according to the general conceptualization of active leaders, the safety-specific transformational leader engages in behavior that is characteristic of the components of transformational leadership and contingent reward, yet specifically focused on inspiring and rewarding positive safety-related attitudes and behaviors in the workplace. In their study, Barling et al. found that safety-specific transformational leadership positively affected safety climate perceptions, which in turn negatively affected occupational injuries. Using an intervention approach, Mullen and Kelloway (2009) provided some empirical support for the causal relationship between transformational leadership and safety performance, showing how safety-specific transformational leadership training significantly improved safety outcomes, particularly safety participation.

Kelloway et al. (2006) extended the work of Barling et al. (2002) by repeating the safety-specific transformational leadership scale and proposing, in a similar vein, a safety-specific measure of passive leadership. The measure combined elements from laissez-faire leadership and management-by-exception (passive) leadership, both considered ineffective styles within the full-range model (Bass & Avolio, 1997). Laissez-faire leadership is the absence of leadership and has been described as leader inaction, being unavailable when needed by employees, and avoidance of both decision-making and leadership responsibilities (Judge & Piccolo, 2004). Management-by-exception (passive) style characterizes leaders that monitor followers' behavior and take corrective action only once problems have occurred (Bass & Avolio, 1997). Zohar (2002) found that management-by-exception (passive) and laissez-faire leadership negatively impacted safety climate and, thus, contributed to increased injury rates. Due to the highly positive correlations, researchers have combined the two passive dimensions into a higher-order factor (Den Hartog, Van Muijen, & Koopman, 1997; Kelloway et al., 2006). Kelloway et al. showed that safety-specific passive leadership is an empirically distinct construct, albeit negative correlated, from safety-specific transformational leadership. In addition, their study demonstrated the unique effects of both active and passive styles of leadership in the prediction of safety-related outcomes (safety climate and safety consciousness directly, and safety events and injuries indirectly) — specifically, they found that safety-specific passive leadership contributed incrementally to the prediction of safety outcomes over and above the prediction obtainable from transformational leadership. Finally, the authors suggested that leaders are not either transformational or passive. Like others (e.g., Griffin & Hu, 2013), they stated that there is little evidence that leadership is trait-like or constant within an individual. Rather, leaders engage in transformational or passive behaviors at different frequencies, probably as a consequence of situational aspects (e.g., productive pressures). Empirically, this means that the two leadership styles are not mutually exclusive and it is possible that the individual leaders could alternate transformational and passive leadership styles or display both types of leadership to individual employees. Mullen et al. (2011) labelled this phenomenon as "inconsistent leadership" and found that predictive effect of safety-specific transformational leadership on safety performance was buffered when leaders also displayed passive leadership with respect to safety outcomes.

In summary, evidence suggests that both transformational and passive leadership have significant impact on safety-related issues, particularly safety climate. In addition, safety-specific measures are preferable to explore such effects because the reference to safety goals is explicit; differently, content of general measures of leadership does not refer directly to safety goals and can create ambiguity and misunderstanding with respect to the object which the leader's behavior is referring to (e.g., production vs. safety matters). Nevertheless, studies considering simultaneously specific measures of both active and passive safety leadership remain scarce.

THE CURRENT STUDY

The main purpose of this study was to develop and validate an Italian version of two safety-specific leadership scales measuring transformational and passive behaviors, as proposed by Kelloway et al. (2006). In doing this, we extended previous research in two main respects: a) we contributed to the validity of the scales used in Kelloway et al. by testing them in the Italian context; b) we contributed to safety literature by examining the relationship between active and passive safety leadership and safety climate in the context of safety-critical organizations, specifically in the construction industry. This sector has one of the worst occupational safety and health records in Europe: close to one in four (23.1%) fatal accidents at work in the EU-28 in 2011 took place within the construction industry (Eurostat, 2014).

Following Gatti, Tartari, Cortese, and Ghislieri (2014), the structure of the scale was investigated through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Two studies were implemented. Study 1 explored the adequacy of a first Italian version of the scales in a sample of workers from the manufacturing sector. Building on results of this first investigation, Study 2 examined the psychometric properties of a second, adapted version of the scales in a sample of construction workers. In this second investigation, a measure of safety climate was included to primarily assess the concurrent validity of the adapted scales. In safety literature concerning the construction sector, the concept of safety climate was largely investigated (Dedobbeleer & Béland, 1991; Jorgensen, Sokas, Nickels, Gao, & Gittleman, 2007) and a number of studies converged in concluding that the attention to the matter received from management and the way in which safety was organized in a company had direct and positive impacts on supervisors and, in turn, on workers (Larsson, Pousette, & Törner, 2008; Meliá, Mearns, Silva, & Lima, 2008; Törner & Pousette, 2009).

STUDY 1

The purpose of Study 1 was to examine the properties of a first Italian version of the scales developed by Kelloway et al. (2006). EFA, along with scale statistics (Cronbach's alphas and corrected item-total correlations), was used to examine the factor structure of items and provide information about their adequacy (and reliability). Results are presented and the consequent scale adaptation is discussed in the last of the following sections.

METHOD

Participants

This study was conducted at the beginning of 2013 in the Italian region of Romagna. Participants were 340 workers (75.6% men) from 17 small and medium firms (primarily manufacturing sector). They were recruited in the context of a prevention program promoted by the local health authority (AUSL). All the organizations involved in the project had recorded at least one serious injury in the last two years. The majority of workers (53%) reported job tenure within the current organization of more than 10 years. Only 14.3% of participants were migrant workers.

Procedure and Measures

As the first step, original items developed by Kelloway et al. (2006) were translated into Italian (see Appendix A for the original English items). Following indications used in similar studies (Brislin, 1970), the translation process consisted of four successive phases: i) two of the authors of this article translated the scales independently; ii) translations were compared and a consensus version was agreed upon; iii) this version was translated back into English by a native speaker ignoring the original scales; iv) the back-translated version and the original source were matched and linguistic discrepancies were analyzed. As a result, no substantial differences were found.

The Italian version of the scales (see Appendix B for translated items) was included in a self-report questionnaire that also comprized the demographic items described in the previous section. The questionnaire was administered in a pencil-and-paper format. In answering the leadership scales' items, informants were asked to refer to their direct supervisor. The items (10 for safety-specific transformational leadership and three for safety-specific passive leadership) were rated on a 5-point frequency scale ranging from 1 (*not at all*) to 5 (*frequently or always*).

Results and Discussion

Table 1 presents descriptives and scale analyses for the safety-specific leadership items. As shown, the Cronbach's alpha for the safety-specific transformational leadership scale was satisfactory (.95) with an average inter-item correlation of .65 (range = .50 to .80); in contrast, alpha for the passive leadership scale was quite low .61, with an average inter-item correlation of .35 (range = .10 to .71). Based on the criterion of .30 as an acceptable corrected item-total correlation (Nunnally & Bernstein, 1994), one item was identified as unacceptable (Item 11).

EFA using maximum likelihood (ML) method was then conducted using SPSS 20. Oblique rotation (promax) was used, given previous research suggesting a negative significant association between the two leadership scales. Factor analysis yielded two factors with eigenvalues higher than 1, explaining 62.84% of the variance. Only Item 11 showed a factor loading below .50 (Table 2). In addition, it had fairly similar loadings on both factors, albeit greater on Factor II (.31). Although this value is aligned with the minimum threshold (.30) traditionally used to accept an item as belonging to a factor (Merenda, 1997; Peterson, 2000), it cannot be considered salient (Hair, Anderson, Tatham, & Black, 1998) being lower than .50. Finally, the two factors showed a quite low negative correlation (–.27; $p < .001$).

TABLE 1
Descriptives and scale analyses in Study 1

Dimension/Items	*M*	*SD*	ISC	α
Transformational leadership				.95
Item 1	3.58	1.14	.73	
Item 2	3.09	1.26	.69	
Item 3	3.65	1.20	.82	
Item 4	3.86	1.15	.81	
Item 5	3.53	1.22	.82	
Item 6	3.34	1.26	.83	
Item 7	3.43	1.21	.83	
Item 8	3.60	1.12	.83	
Item 9	3.06	1.25	.74	
Item 10	3.57	1.14	.73	
Passive leadership				.61
Item 11	2.86	1.39	.19	
Item 12	2.32	1.34	.62	
Item 13	1.89	1.27	.51	

Note. $N = 340$. ISC = corrected item-total correlation. For the meaning of items, see Appendix A.

TABLE 2
Exploratory factor analysis ($N = 340$): 13 items, two factors extracted (ML, promax rotation)

Items	Factor I	Factor II
Item 5	**.87**	.03
Item 3	**.87**	.06
Item 7	**.87**	.01
Item 6	**.86**	.04
Item 8	**.85**	–.04
Item 4	**.82**	–.05
Item 10	**.76**	–.01
Item 9	**.76**	.01
Item 1	**.74**	–.01
Item 2	**.70**	–.01
Item 12	.04	**.94**
Item 13	–.15	**.73**
Item 11	.23	.31

Note. Factor loadings > .50 are written in bold type. Items are listed considering factor loadings in a decreasing order. For the meaning of items, see Appendix A. ML = maximum likelihood.

Taken together, these results provide evidence that one item (Item 11) failed to perform adequately, and may detract from the overall safety-specific passive leadership score. Specifically, this item failed to show a corrected item-total correlation higher than .30 (Nunnally & Bernstein, 1994) and did not load in a salient manner on the solution provided by the EFA. This finding was not so surprising looking at the factorial performance of the original Item 11 reported in Kelloway et al. (2006): it showed the lowest loading (.54) considering both the transformational and the passive items. This partial correspondence led our attention to the wording of the item ("Avoids making decisions that affect safety on the job") and its potential ambiguity. Because the term "affect" is neutral, it could be interpreted both positively and negatively in relation to safety (i.e., a leader, with his/her decisions, could improve or reduce safety on the job). Consequently, the item was reformulated, making it clear, unambiguous and consistent with the passive leadership scale (i.e., "Avoids making decisions that promote safety on the job" in English; "Non prende decisioni che favorirebbero la sicurezza sul lavoro" in Italian; see "Item 11 revised" in Appendix B).

STUDY 2

Building on the results of Study 1, we examined the validity and reliability of the adapted scales of transformational and passive leadership (with Item 11 revised) within a confirmatory framework. Structural equation modeling was used to evaluate psychometric properties of the proposed measurement scales. The conceptual model is shown in Figure 1. The inclusion of safety climate in the model allowed us to investigate concurrent validity in parallel with convergent validity and reliability of leadership scales. Robust maximum likelihood was used as the estimation procedure (Hu, Bentler, & Kano, 1992; Satorra & Bentler, 1994). All analyses were conducted using LISREL 8.8 (Jöreskog & Sörbom, 2006).[2]

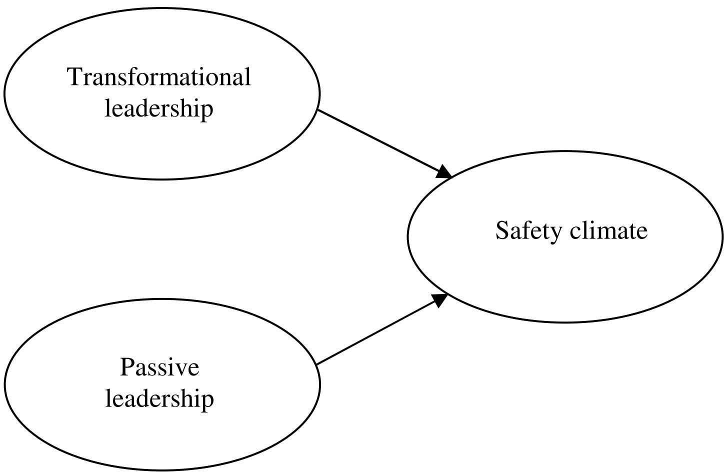

FIGURE 1
Conceptual model analyzed in Study 2.

METHOD

Participants

Study 2 was conducted in the period October-November 2013 in the province of Ravenna (Italy). The sample consisted of 216 construction workers from small and medium firms. Respondents were all men and 17% were migrant workers. Mean age in the sample was 41.3 years (*SD* = 10). The average working hours per week were 39.8 (*SD* = 7.3 hours). The mean job tenure was 13.8 years (*SD* = 11.1 years).

Procedure and Measures

Data were collected on the occasion of safety courses, which are mandatory (in the construction industry) according to public laws. Questionnaires were administered in paper-and-pencil format inside the training classrooms, at the end of sessions. Workers participated on a voluntary basis after being informed about the aims of the study. In addition to the adapted scales of safety leadership (see Appendix B) the questionnaire included a measure of safety climate. Safety climate was measured by using an Italian version (Bonomo, Ghini, Sarchielli, Toderi, & Veneri, 2015) of the short scale developed by Hahn and Murphy (2008), which had demonstrated validity and reliability with samples from safety-critical organizations (e.g., nuclear plants). This scale, resulting from previous work by DeJoy, Searcy, Murphy, and Gershon (2000), taps four fundamental dimensions of safety climate: management commitment, safety performance feedback, workers involvement, and safety behavior norms. The scale comprized six items (e.g., "New employees learn quickly that they are expected to follow good health and safety practices"), and each item was responded to by using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A preliminary analysis was conducted to examine the scale's adequacy. Following procedures used in Study 1, EFA was performed and Cronbach's alpha was calculated. Factor analysis yielded one factor with an eigenvalue higher than 1, which explained 44.72% of the variance, and confirmed the unidimensional structure of the scale. All the items showed a factor loading greater than .50 (range = .51-.78) and Cronbach's alpha for the current sample was .85. In summary, results support the suitability of the safety climate's scale in the context of this study.

Analyses

With respect to the proposed model (Figure 1), the goodness of fit was examined by using a series of absolute and comparative indices. As suggested by the literature (e.g., Hu & Bentler, 1999), the following threshold values were adopted: CFI ≥ .95; NNFI ≥ .95; RMSEA ≤ .06; SMRM ≤ .08.

Preliminary analyses confirmed that the two-factor solution of leadership (transformational and passive) was a better fit than the one-factor solution, as suggested by the EFA of Study 1. The two-factor model resulted in a S-Bχ^2 estimate of 115.54 (N = 216, df = 64, p < .001). All fit indices, besides RMSEA, were coherent with the cut-off values selected, suggesting that the model fit the data satisfactorily (CFI = .99; NNFI = .98; RMSEA = .07; SRMR = .07). In contrast, the one-factor solution (S-Bχ^2 estimate of 297.05; N = 216, df = 65, p < .001) showed a deterioration in CFI and NNFI indices (CFI = .92; NNFI = .93), and not acceptable RMSEA and SRMR values (RMSEA = .14; SRMR = .12).

The validity of the leadership scales was verified by considering convergent validity and concurrent validity. The convergent validity reflects the extent to which two measures of the same concept are correlated. Operationally, following Anderson and Gerbing (1988), it was studied through standardized lambda parameters, which represent the regression coefficients relating each observed variable to the latent one. Significant coefficients greater than .50 signal a strong condition of convergent validity. For the same purpose, the average variance extracted (AVE) index was also calculated. The AVE estimate is the average amount of variation that a latent construct is able to explain in the observed variables to which it is theoretically related — more specifically, the amount of variance that is captured by the latent construct in relation to the amount of variance due to its measurement error. The index was proposed by Fornell and Larcker (1981) as an indicator of convergent validity: when the common variance of a set of items captured by the latent construct is more than 50%, acceptable convergent validity is considered to be shown.

Concurrent validity was examined considering safety climate as an outcome (or dependent variable) in the structural model. The relationship between leadership and safety climate is well established in literature (Clarke, 2013); thus, we expected a negative effect by passive leadership and, instead, a positive effect by transformational leadership. The analysis focused on significance and magnitude of path coefficients — specifically, the standardized gamma parameters, which express the relation between an exogenous latent concept (the two safety leadership styles in our study) and an endogenous one (the safety climate).

Reliability study focused on scales' internal consistency, namely, the extent to which the items of a scale measure the same construct. Composite reliability (CR) index was calculated for this purpose. CR estimates are based on proportions of variance (lambda parameters) and take account of each item's error. Thus, they provide a less biased estimate of reliability than Cronbach's alpha (Peterson & Kim, 2013). CR values greater than .70 are recommended (Bagozzi & Yi, 2012).

Results and Discussion

Table 3 reports correlations and descriptive statistics of measures included in the questionnaire. As the first and fundamental step, the proposed model (Figure 1) was analyzed, constraining all error covariances to zero. The model so-specified resulted in a S-Bχ^2 estimate of 203.63 (N = 216, df = 149, p = .002). All fit indices were coherent with the cut-off values, suggesting that the model fit the data satisfactorily (CFI = .99; NNFI = .99; RMSEA = .04; SRMR = .07).

With respect to safety-specific leadership scales, standardized lambda estimates are presented in Table 4. As shown, all loadings were significant ($t \geq 9.46$) and greater than .60 (.66-.97). In addition, AVE coefficients were similar and greater than .50. Taken together, these results confirmed the convergent validity of the two scales' measurement model. As seen in Table 4, sufficient reliability was demonstrated: CR values (.94 and .83), for the two dimensions of safety leadership, were greater than the recommended threshold of .70.

To test the concurrent validity of the leadership scales, we investigated the path coefficients implicated in the proposed model (Figure 1). As reported in Table 5, both safety-specific transformational and passive leadership showed significant, albeit opposite and different in magnitude, effects on safety climate. Directions of the effects were as expected. This result supports the concurrent validity of the adapted scales measuring safety-specific transformational and passive leadership.

In summary, findings of Study 2 strongly supported the validity and reliability of the adapted scales. This result represents an important empirical confirmation of the usefulness of the scales because it shows that they can be applied in the context of the construction industry.

TABLE 3
Correlations and descriptive statistics of measures in Study 2 ($N = 216$)

	1	2	3
1 Safety climate	–		
2 Transformational leadership	.50*	–	
3 Passive leadership	–.11	.08	–
M	3.90	3.83	2.80
SD	0.74	0.81	1.18
Skewness	–.78	–.96	–.04
Kurtosis	.70	.86	–.96
# of items	6	10	3

* $p < .001$.

TABLE 4
LISREL results for the convergent validity, and reliability of the adapted scales in Study 2

Dimension/Items	λ	*t*	CR	AVE
Transformational leadership			.94	.62
Item 1	.73	*na*		
Item 2	.70	10.12		
Item 3	.80	11.68		
Item 4	.80	11.69		
Item 5	.84	12.28		
Item 6	.84	12.41		
Item 7	.80	11.78		
Item 8	.80	11.74		
Item 9	.75	10.92		
Item 10	.78	11.37		
Passive leadership			.83	.63
Item 11	.71	*na*		
Item 12	.97	9.64		
Item 13	.66	9.46		

Note. *na* = not available, because the parameter was fixed to 1. CR = composite reliability; AVE = average variance extracted.

TABLE 5
LISREL results of the regression analysis for the concurrent validity of the adapted scales (standardized gamma parameters), Study 2

	Safety climate (dependent variable)
Transformational leadership	.54***
Passive leadership	–.15*
R^2	.30

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

GENERAL DISCUSSION

In this study we validated an Italian version of two safety-specific leadership scales measuring transformational and passive behaviors, as proposed by Kelloway et al. (2006). These scales were constructed in response to a call for overcoming two shortcomings in the current research on safety leadership: a) the lower attention given to the effects of passive/ineffective leadership than to those of transformational/effective leadership on safety in the workplace; b) the tendency to use general rather than specific measures to detect the effects of leadership on safety. These limitations can become even more serious when studying safety dynamics in organizations where safety is a critical issue, like on construction sites.

Based on the works of Barling et al. (2002) and Kelloway et al. (2006), we developed and examined an Italian version of the two scales through two studies. In Study 1, we adopted an exploratory approach relying on a sample of Italian workers, primarily from the manufacturing industry: analyses showed problems with one item belonging to the passive leadership scale, leading to its reformulation. In Study 2, a confirmatory approach was used to test validity and reliability of the adapted scales (with the Item 11 revised, as resulted from Study 1) in a sample of construction workers. Results confirmed the reliability as well as the convergent and concurrent validity of the Italian scales. Findings suggest that the adapted scale improves the measurement of safety-specific passive leadership and call for a modification in the original scale.

A number of results obtained in this study have theoretical as well as practical implications, especially in suggesting further research directions. First, Item 11 in the first Italian version failed to demonstrate adequacy in measuring passive leadership relating to safety. Convergent analyses suggested ambiguity in its formulation, and a misinterpretation of the sentence is likely. This aspect and its potential consequences in terms of misinterpretation can be found in the original English version of the item too, being a linguistic rather than cultural matter. The item's relatively low performance in the factor analysis provided by Kelloway et al. (2006) can be cautiously considered a signal revealing such problems. Thus, the result obtained in Study 1 requires additional confirmatory factor analyses focused on the original item and, if necessary, its modification or scale refinement.

Second, safety-specific transformational and passive leadership styles were shown to be distinct and, with respect to data from Study 2, uncorrelated constructs. Distinctiveness corroborates previous findings (Kelloway et al., 2006) and supports the need for further research in detecting the potential negative, unique effects of passive leadership on safety together with those of active/transformational leadership. In addition, although in Study 1 we found a negative correlation between transformational and passive leadership styles, similarly to previous studies (e.g., Kelloway et al., 2006; Mullen et al., 2011), in Study 2 the two leadership styles were uncorrelated. It is worth noting that this study was conducted in the context of safety-critical organizations (specifically in the construction industry) and using a modified passive leadership measure (Item 11 revised). We are not able, in this study, to evaluate if one or both factors influenced the correlation; future research should examine this issue. However, the absence of a significant correlation in Study 2 supports the perspective according to which leaders can be both transformational and passive as regards safety. As shown by Mullen et al. (2011), "inconsistent" leaders can have detrimental effects on subordinates' safety behaviors, primarily attenuating the positive effect of transformational behaviors. Thus, further research is needed to explore which factors or conditions are associated with inconsistent leadership.

Third, safety-specific transformational and passive leadership styles showed significant and opposite relationships with safety climate. It is important to note that the relationship between transformational leadership and safety climate is considerably stronger than the relationship between passive leadership and safety climate. This result differs from that reported in Kelloway et al. (2006), who concluded that the effects of the two leadership styles on safety climate are approximately equal in magnitude and opposite in sign. A possible explanation of this discrepancy in magnitude can be found looking at the average frequency of transformational and passive behaviors reported in our sample: it can be seen that transformational behaviors are more frequent than passive behaviors, which are essentially unusual. Since the leaders are meant to create climates through repeated actions (Hoffmeister et al., 2014; Zohar & Tenne-Gazit, 2008), it is likely that safety climate mostly reflects the prevalent leadership style. Furthermore, this last result constitutes a basis for additional research on safety dynamics within the integrative framework initially proposed by Griffin and Neal (2000). In fact, although empirical studies have provided support for the importance of safety climate in promoting safety performance (i.e., safety compliance and safety participation), it is not clear whether the role of leadership must be considered a situation-related factor along with safety climate (Christian et al., 2009) or a proximal antecedent of safety climate (Mohammed, 2002). Further research is needed to examine how different leadership behaviors interact in the prediction of safety climate as well as other safety-related constructs included in the integrative model, leading to a more accurate understanding of safety dynamics.

Our study inevitably presents limitations. A first limitation is the use of a convenience sample in both studies. Hence, particularly with respect to Study 2, any attempt to generalize the research findings must be undertaken with caution. Nevertheless, all construction workers in Study 2 were from small and medium organizations, which is strongly in line with this sector's composition in both Europe and Italy. Future research must start from this point and consider other relevant population characteristics, such as age and job tenure, which are related to safety issues (Swuste et al., 2012). A second limitation is that we used safety climate to test the concurrent validity of the two safety-specific leadership scales. However, also safety climate represents a safety antecedent and common method bias cannot be excluded. Thus, to obtain a more reliable assessment of the criterion-related validity of the scales it is necessary to use less proximal safety performance measures, and perhaps objective measures in future research.

Practical Implications

Taking into account the limitations described above, this research has enabled the development of a valid Italian version of the safety-specific leadership scales, at the same time, showing a possible improvement in the original passive leadership scale, which should be tested in further investigations. These represent important practical contributions as we believe that the availability of a validated version of the safety-specific transformational and passive leadership scales can contribute to the development of safety research as well as safety practice, especially in safety-critical organizations, in which leadership improvement can represent an important leverage for the prevention of injuries and serious accidents.

NOTES

1. A safety-critical organization can be defined as "any organization that has to deal with or control such hazards that can cause significant harm to the environment, public or personnel" (Reiman & Oedewald, 2009, p. 2).
2. Robust maximum likelihood estimation was chosen since violations in multivariate normality of the observed variables were detected through Mardia's test (in LISREL).

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APPENDIX A

Original Items of the Safety-Specific Transformational and Passive Leadership Scales
(Kelloway et al., 2006)

Labels	Content
Transformational leadership	
Item 1	Express satisfaction when I perform my job safely
Item 2	Makes sure that we receive appropriate rewards for achieving safety targets on the job
Item 3	Provides continuous encouragement to do our jobs more safely
Item 4	Shows determination to maintain a safe work environment
Item 5	Suggests new ways of doing our jobs more safely
Item 6	Encourages me to express my ideas and opinion about safety at work
Item 7	Talks about his/her values and beliefs of the importance of safety
Item 8	Behaves in a way that displays a commitment to a safe workplace
Item 9	Spends time showing me the safest way to do things at work
Item 10	Would listen to my concerns about safety on the job
Passive leadership	
Item 11	Avoids making decisions that affect safety on the job
Item 12	Fails to intervene until safety problems become serious
Item 13	Waits for things to go wrong before taking action

APPENDIX B

Italian Version of the Items of the Safety-Specific Transformational and Passive Leadership Scales (Kelloway et al., 2006)

Labels	Content
Transformational leadership	
Item 1	Esprime soddisfazione quando io lavoro in sicurezza
Item 2	Si assicura che riceviamo riconoscimenti appropriati per aver raggiunto obiettivi di sicurezza sul lavoro
Item 3	Ci incoraggia continuamente a svolgere i nostri lavori in maggiore sicurezza
Item 4	Mostra determinazione nel mantenere un ambiente di lavoro sicuro
Item 5	Suggerisce nuovi modi per compiere i nostri lavori in maniera più sicura
Item 6	Mi incoraggia a esprimere le mie idee e opinioni rispetto alla sicurezza sul lavoro
Item 7	Parla dei suoi valori e convinzioni sull'importanza della sicurezza
Item 8	Si comporta in un modo che mostra coinvolgimento verso un luogo di lavoro sicuro
Item 9	Passa del tempo a mostrarmi il modo più sicuro di lavorare
Item 10	Ascolterebbe le mie preoccupazioni riguardanti la sicurezza sul lavoro
Passive leadership	
Item 11	Non prende decisioni che influenzerebbero la sicurezza sul lavoro
Item 11 revised	Non prende decisioni che favorirebbero la sicurezza sul lavoro [Avoids making decisions that promote safety on the job]
Item 12	Non interviene finché i problemi di sicurezza non sono diventati seri
Item 13	Aspetta che le cose "si mettano male" prima di agire