



Proactive role-orientation toward workplace safety: Psychological dimensions, nomological network and external validity



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ABSTRACT

In the light of the relevance of workers' participation and initiative in improving safety in the workplace, a new measurement tool is presented to assess multiple psychological drivers (proactive motivations; future orientations) which support a proactive orientation by individuals toward safety management and accident prevention in the workplace. This validation study was developed with a survey methodology in two industrial samples ($N = 327$; 196) from the chemical and manufacturing sectors. The factor structure of the tool was tested with CFA's. The analyses evidenced the goodness of a multidimensional structure, with a general superordinate dimension indicator of the overall construct of individuals' proactive safety-role orientation. Moreover, the analysis of the nomological network of the new model showed positive correlations with both behavioral criteria (safety voice; safety initiative) and supervision antecedents (safety-specific transformational leadership) which were measured at the individual level. Finally, the external validity was positively verified by significant correlations with organizational outcomes assessed at the team level through external measures (supervisor evaluations; data archives) which were collected at team level ($N = 32$) in the following six months from the main survey. Theoretical and practical implications with indications for future research conclude the article.

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1. Introduction

Many authors have stressed the importance of considering the proactive contribution by individuals and teams in achieving the desired level of safety across different organizational settings (Hollnagel et al., 2012; Reason, 2008). Understanding what motivates employee proactivity toward risk management is an important part of changing unsafe conditions and increasing organizational capability to prevent accidents (Mariani et al., 2015; Scott et al., 2014). Within this framework, the conceptualization of proactive role orientation toward safety management has emerged as a broad set of psychological and motivational orientations by individuals and teams in preventing accidents, managing safety-related issues in the day-by-day individual and teamwork activities and improving workplace safety conditions (Curcuruto and Griffin, in press; Hofmann et al., 2003; Turner et al., 2005; Weick and Sutcliffe, 2007). The importance of the construct and its related phenomena have been highlighted by both researchers

and practitioners, considering different perspectives of analysis in organizational and industrial settings: the impossibility to predict all the risk factors and threats for health and safety (Peiró, 2008); organizational learning and improvement (Curcuruto et al., 2014); development of human resources capability (Griffin et al., 2014); sustainability of the work experience over time (Clarke, 2010; Hofmann and Tetric, 2003).

In line with this, a great deal of research in applied psychology has shown the importance of workers' motivation to participate in the spread of safety in work organizations (i.e. Christian et al., 2009). Nevertheless, as recently reported by Zohar (2008), relatively little research has been focused on the explanation of the different psychosocial mechanisms which lead to proactive safety behaviors, like safety initiative and *changing-oriented* safety citizenship (Curcuruto et al., 2013). Moreover, whereas the general research tendency is mainly oriented toward the "preventive-focused" perspective of analysis of human contributions to workplace safety (i.e. reducing errors and risk; avoidance of negative events; compliance with safety procedures) (Higgins, 2012; Hollnagel et al., 2012; Reason, 2008; Wallace and Chen, 2006), little research has been focused to explore more "*promotion-focused*" perspectives of safety (Kark et al., 2015). This also resonates with Hollnagel's

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(2014) concepts of Safety I and Safety II in relation to safety management. Safety I refers to the traditional form of safety management, where the objective is to ensure that accidents and incidents are kept to a minimum or even prevented altogether. In this perspective, safety is defined as a state where as few things as possible go wrong, due to technical, human and organizational causes. This leads to a reactive approach where management responds to what has gone wrong or what could go wrong (i.e. correcting malfunctions, failures, potential risks). On the other hand, Safety II involves focusing on what goes right, which is a proactive approach to safety management. This is based on a different set of managerial principles, such as the continuous anticipation of possible developments and events in the future, and the consequent capability for the organizations to make constant adjustments to their performances, thereby ensuring successful variability, adaptivity and flexibility of their socio-technical systems. In relation to the current paper, Safety II measures effective actions and everyday acceptable performance, which can stem from the proactive orientation of the workforce toward the continuous improvement of safety in daily organizational activities.

In agreement with these reflections, the principal purpose of the present article is to define and validate a measurement tool aimed to assess the motivational components of a proactive orientation by individuals toward the active prevention of accidents and injuries in the workplace, which may express a more positive and “pro motion-focused” approach in safety management.

The paper aims to offer relevant contributions to the existing organizational behavior literature in different ways. Firstly, we aim to test a specific measurement model to assess the different motivational facets of the construct of proactive role orientation toward safety management in the workplace. In doing this, the general organizational paradigm of proactive motivation (Parker et al., 2010) and dynamic capabilities (Griffin et al., 2015) are considered here as a theoretical basis to draw on and describe multiple motivational drivers of a proactive orientation toward safety management, accident prevention and improvement of safety systems. To the best of our knowledge, even if the paradigm of proactivity has been investigated in different organizational research fields (i.e. socialization; innovation), until now no study has been focused on how multiple proactive motivational states support the emergence of proactive phenomena in the domain of workplace safety. Secondly, our test would allow us to define a diagnostic model which is potentially valid across different organizational settings and formal role definitions, considering the generalizability of the construct of proactive motivation (Parker et al., 2010). Thirdly, we aim to show how our assessment tool is related to relevant behavioral criteria of safety proactivity, like safety initiative (Kark et al., 2015; Zohar, 2008), safety voice (Tucker and Turner, 2015; Conchie, 2013), and prosocial safety citizenship (Curcuruto et al., 2013; Griffin and Curcuruto, 2016).

The paper is structured as follows. First, we will briefly discuss the assumptions underlying and the dimensions comprising the new proposed assessment model of proactive safety orientation. Then, empirical findings are presented in relation to two complementary steps of validation of a new psychometric tool: (a) the investigation of the internal factor structure and dimensionality of the measurement model (b) a further step of construct validation involving the definition of a nomological network of the constructs underlying our new psychometric tool. Construct validity evidence based on nomological validity refers to the degree to which a new construct behaves as it is expected to within a system of related constructs (the nomological network) on the basis of the conceptual assumptions deduced by the theoretical framework of reference. In the present study, we will provide evidence of nomological validity exploring the correlations of our assessment model with other existing well-established safety-specific organizational

dimensions (i.e. transformational leadership) and expected behavioral criteria outcomes (i.e. proactive safety behaviors), using both self-reported and external measures.

2. Theoretical foundations: paradigms of safety proactivity in organizations

Research on socio-technical systems has broadly discussed the concept of proactive orientation toward safety management as the expression of the whole organizational system to enhance the ability at all levels to create safe processes, to monitor and revise organizational safety models, and to use resources proactively in the face of disruptions or ongoing production and productivity pressures (Curcuruto and Griffin, in press; Hollnagel et al., 2012; Reason, 2008; Weick and Sutcliffe, 2007; Zohar, 2008). For instance, the 3Cs resilience model by Reason (2008) has embedded the concept of safety proactivity considering managerial orientations of commitment, cognizance and capability by the organizations. Similar considerations have been advanced in relation to other socio-technical paradigms, considering organizational constructs like *collective mindfulness* and *engineering resilience* (Hollnagel et al., 2012; Weick and Sutcliffe, 2007).

At the individual level of analysis, two studies of significance (Hofmann et al., 2003; Turner et al., 2005), considered how people define organizational citizenship behaviors (OCB) as a part of their own expected safety role in the organization, elaborating the construct of *safety citizenship role definition*. This concept is related to the idea that people develop specific perceptions about safety-related behavioral role expectations during interactions with other day-by-day organizational actors, and go beyond their formal task description. Nevertheless, recent reviews of research on in-role definition pointed out some limits of this approach. Firstly, the implicit lack of consideration of individual motivations and self-perception in the role-expansion processes. In most cases workers would be considered as passive actors who react to external stimuli and expectations, without any consideration for the active role played by their motivations and self-perceptions in the construction and extension of their perceived role toward specific organizational domains (i.e. Grant and Hofmann, 2011). Second, the conceptualization and measures of the specific construct of safety citizenship role-definition appears to be mono-dimensional, being focused only on the perceptions of others' expectations on the enacting of several extra-role behaviors with implications for workplace safety, without any consideration of the influence of workers' cognition, affect and perception.

In contrast with the paradigms of safety citizenship in the definition of safety-specific role orientations we propose an alternative approach, which differs on two points. Firstly, it aims to embrace a positive perspective of the individual, who is assumed to be an active element of the organizational system whose continuous adaptation and initiative efforts over time enable the whole system to self-improvement, resilience and development, beyond simply bringing it back from the brink of accidents and negative events (Hollnagel et al., 2012; Reason, 2008). Secondly, it aims to consider multiple psychological mechanisms, which drive human operators to achieve the highest levels of proactivity toward safety management, rather than the individual's perception of social expectations or desired behavioral models in their organizations (Parker et al., 2010).

3. Proactive motivation, future orientation and safety management in the workplace

A novel way to consider the concept of proactivity in the domain of safety and plug the existing gap in the literature has

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