ABSTRACT

Keywords: Safety Management, Safety Climate, Safety Performance

In the twentieth century, as technology grew by leaps and bounds, associated hazards also grew with it. This resulted in collective efforts and thinking in the direction of controlling work related hazards and accidents. Thus, safety management developed and became an important part of industrial management. While considerable research has been reported on the topic of safety management in industries from various parts of the world, there is scarcity of literature from India. It is logical to think that a clear understanding of the critical safety management practices and their relationships with accident rates and management system certifications would help in the development and implementation of safety management systems.

In the first phase of research, a set of six critical safety management practices has been identified based on a thorough review of the prescriptive, practitioner, conceptual and empirical literature. An instrument for measuring the level of practice of these safety management practices (from the employees' perception) has been developed by conducting a survey using questionnaire in chemical/process industry. The instrument has been empirically validated using Confirmatory Factor Analysis (CFA) approach. As the second step, predictive validity of safety management practices and the relationship between safety management practices and self-reported accident rates and management system certifications have been investigated using ANOVA. Results of the ANOVA tests show that there is significant difference in the identified safety management practices among the organizations. In the next step, the relationship between safety management practices and the determinants of safety performance have been investigated using Multiple Regression Analysis. Similar analysis has been carried out to investigate the predictive capacity of determinants of safety performance on components of safety performance. The impacts of personal attributes of employees, management system certifications and accidents on determinants and components of safety performance have also been investigated using ANOVA. Results of the regression tests show that safety training predicts both safety knowledge and safety motivation, which in turn predict both safety compliance and safety participation. The inter-relationships between safety management practices, determinants of safety performance and components of safety performance have been investigated with the help of structural equation modelling. Further investigations into engineering and construction industries reveal that safety climate factors are not stable across industries. However, some factors are found to be common in industries irrespective of the type of industry.

This study identifies the critical safety management practices in major accident hazard chemical/process industry from the perspective of employees and the findings empirically support the necessity for obtaining safety specific management system certifications.