عنوان مقاله:

Designing and Constructing a Tool for Safety Culture Evaluation in a Processing Industry Based on Factor Analysis

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خلاصه مقاله:

Objectives: This study aims to develop and create a tool based on factor analysis to assess safety culture in the processing industry. Methods: This study was conducted in the petrochemical industry in ۲۰۲۱. The questionnaires were distributed among ۳۱۲ employees, supervisors, and managers, and ۳۰۸ of them were completed. The validity of the questionnaire was assessed by content and construct validity (confirmatory factor analysis), and its reliability was determined by calculating the internal consistency coefficient (Cronbach's α) and conducting a pilot study. Confirmatory factor analysis was used to examine the relationship between the dimensions of safety culture and the dimensions themselves. Results: The results showed that ۶۲.۴% of participants were under ۴۵ years old and ۷۱.۲% of them had more than ۱۰ years of work experience. The obtained content validity index (CVI) and content validity ratio (CVR) were ۰.۸۸ and ۰.۹۱, respectively. The results of exploratory factor analysis (EFA) revealed that six questions were assigned to each dimension of safety culture in the questionnaire. The results of confirmatory factor analysis (CFA) with a P of ۰.۰۰۱ and the overall goodness index of root mean square error of approximation (RMSEA) of ۰.۰۷ and the goodness indices of adaptive fit, including good fit index (GFI), comparative fit index (CFI), and normal fit index (NFI) were ۰.۹۵, ۰.۹۷, and ۰.۹۵, respectively. Discussion: Based on the results, a safety culture assessment instrument was developed, including ۱۰ dimensions and ۶۰ items. The results of factor analysis showed that the built-in instrument is highly useful to assess safety culture. In addition, these results showed that safety culture has the strongest relationship with the priority of focusing on health, safety, and environment (HSE) and the weakest relationship with the dimension of collaboration and involvement. Coresponding author: Iraj Mohammadfam, E-mail: mohammadfam@umsha.ac.ir You can also search for this author in: Google Scholar

کلمات کلیدی:

Safety culture, Processing industry, Factor analysis, Questionnaire