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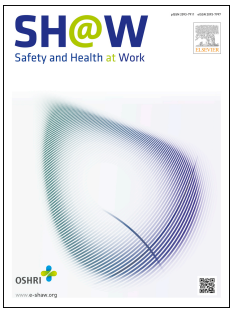

Safety of Workers in Indian Mines: Study, Analysis and Prediction

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Safety of Workers in Indian Mines: Study, Analysis and Prediction

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Abstract

Background: Mining industry is known worldwide for highly risky and hazardous working environment. Technological advancement in ore extraction techniques, for proliferation of production levels has further enhanced concern towards safety for this industry. Research so far in the area of safety has revealed that majority of incidence in hazardous industry takes place because of human error, which if can be controlled then safety levels in working sites can be enhanced to considerable extent.

Method: Present work focuses upon analysis of human factors like unsafe acts, preconditions for unsafe acts, unsafe leadership, organizational influences, adopting modified *Human Factor Analysis and Classification System (HFACS)* and an accident predictive Fuzzy Reasoning Approach (FRA) based system is developed which can predict chances for occurrence of accidents with analysis of factors like age, experience of worker, shift of work etc., for manganese mines in India.

Results: The outcome of analysis indicated that *skill based errors* are most critical and requires immediate attention for mitigation. FRA based accident prediction system developed gives outcome as indicative risk score associated with identified accident prone situation, based upon which a suitable plan for mitigation can be developed.

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