

**SAFETY AWARENESS, WORKLOAD, AND FATIGUE: DETERMINANTS
OF EFFECTIVE SAFETY RISK MANAGEMENT IN THE MINING
INDUSTRY**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due to acknowledgment in the thesis

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ABSTRACT

SAFETY AWARENESS, WORKLOAD, AND FATIGUE: DETERMINANTS OF EFFECTIVE SAFETY RISK MANAGEMENT IN THE MINING INDUSTRY

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This study explores the influence of safety awareness, employee fatigue, and workload on the effectiveness of safety risk management in the mining industry. With occupational accidents continuing to rise in Indonesia's mining sector, the research emphasizes the urgency of addressing human factors that undermine workplace safety. A quantitative approach with a positivist paradigm and stratified random sampling was applied, involving 100 employees in operational roles. Data were collected through validated questionnaires and analyzed using factor analysis and structural equation modeling. The results show that safety awareness significantly improves risk management effectiveness, while fatigue and workload negatively impact safety compliance. Furthermore, heavy workload contributes to increased fatigue, further reducing adherence to safety protocols. These findings highlight the need for mining companies to enhance safety training, implement fatigue management strategies, and balance workloads to reduce accidents and support employee well-being. The study offers practical implications for improving safety systems in high-risk industrial settings.

Keywords: *Safety awareness, employee fatigue, workload, mining industry, occupational safety*

ABSTRAK

KESADARAN KESELAMATAN, KELELAHAN, DAN BEBAN KERJA: DETERMINAN EFEKTIVITAS MANAJEMEN RISIKO KESELAMATAN DI INDUSTRI PERTAMBANGAN

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Penelitian ini mengeksplorasi pengaruh kesadaran keselamatan kerja, kelelahan karyawan, dan beban kerja terhadap efektivitas manajemen risiko keselamatan di industri pertambangan. Pendekatan kuantitatif dengan paradigma positivistik dan metode stratified random sampling digunakan, melibatkan 100 karyawan yang bekerja langsung di bidang operasional. Data dikumpulkan melalui kuesioner terstruktur yang telah divalidasi dan dianalisis menggunakan analisis faktor serta pemodelan persamaan struktural (SEM). Hasil penelitian menunjukkan bahwa kesadaran keselamatan kerja berpengaruh positif signifikan terhadap efektivitas manajemen risiko, sedangkan kelelahan dan beban kerja berdampak negatif terhadap kepatuhan terhadap prosedur keselamatan. Selain itu, beban kerja tinggi memperburuk kelelahan dan menurunkan tingkat kepatuhan. Temuan ini menunjukkan perlunya perusahaan tambang meningkatkan pelatihan keselamatan, menerapkan manajemen kelelahan, dan menyeimbangkan beban kerja untuk mengurangi kecelakaan dan meningkatkan kesejahteraan karyawan.

Kata Kunci: Kesadaran keselamatan, kelelahan karyawan, beban kerja, industri pertambangan.

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