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The Relationship Between Supervisory Function and Mining Safety of Employees at PT. Parama Radika Lestari

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Abstract

Introduction: The mining industry is a sector with a high risk of occupational accidents, making workplace safety a top priority. Supervisors play an essential role in ensuring the implementation of safety procedures and building a safety culture in the mining environment. **Purpose:** This study aimed to determine the relationship between supervisory functions and mining safety among employees at PT. Parama Radika Lestari. **Methods:** This study used a quantitative descriptive design with a cross-sectional approach. The total sample consisted of 32 respondents selected using the census sampling technique. Data were collected using structured questionnaires and analyzed using the Spearman Rank correlation test. **Results:** The results showed that all supervisory function variables had a statistically significant relationship with mining safety ($p < 0.01$). The strongest correlation was found in the controlling function ($r = -0.916$), followed by planning ($r = -0.745$), directing ($r = -0.613$), and team and equipment organization ($r = -0.299$). **Conclusion:** There is a significant relationship between supervisory functions and mining safety. The controlling and planning functions were the most dominant factors in improving workplace safety among mining employees.

Introduction

The mining industry is one of the work sectors with a high risk of occupational accidents, including heavy equipment incidents, landslides, explosions, and exposure to hazardous environmental conditions [1,2]. Therefore, occupational safety and health remain a major priority in mining operations. According to Indonesian regulations on occupational safety, every workplace is required to ensure the safety and health of workers during operational activities [3].

In mining activities, supervisors play a strategic role in ensuring that all operational procedures are carried out safely and in accordance with established standards [4]. Supervisory functions include planning daily operational activities, organizing work teams and equipment, directing field workers, and controlling potential safety risks [5]. Effective supervision is essential in building workers' compliance with safety procedures and strengthening workplace safety culture.

Previous studies have shown that supervisory roles and safety leadership significantly influence employee safety performance and compliance with occupational health and safety standards [6,7]. However, field observations at PT. Parama Radika Lestari indicated that several workers still had limited understanding of safety procedures and considered the supervisory process not yet optimal. This condition may increase the risk of workplace accidents and reduce compliance with standard operating procedures.

Therefore, this study was conducted to analyze the relationship between supervisory functions and mining safety among employees at PT. Parama Radika Lestari.

Methods

Study design

This study used a quantitative descriptive design with a cross-sectional approach to measure the relationships between predetermined variables [8].

Population and Sample

The study was conducted at PT. Parama Radika Lestari in 2025. The population consisted of all operational employees working in the mining field area. The total number of respondents was 32 employees, and all members of the population were included using the census sampling technique.

Data Collect

Data were collected using a structured questionnaire with a Likert scale.

Data Analysis

Data were analyzed using the Spearman Rank correlation test to determine the relationship between supervisory functions and mining safety.

Results

The study involved 32 respondents who were operational employees at PT. Parama Radika Lestari. The respondents consisted of supervisors, concrete specialists, safety officers, and managerial staff working in the mining operational field. The analysis of the relationship between supervisory functions and mining safety was conducted using the Spearman Rank correlation test. A sample of table is presented in Table 1.

Table 1. Relationship Between Daily Operational Planning Function and Mining Safety Among Employees

Variable	Correlations	X1	Y
X1	Correlation Coefficient	1.000	-.745**
	Sig. (2-tailed)	.	.000
	N	32	32
Y	Correlation Coefficient	-.745**	1.000

Sig. (2-tailed)	.000	.
N	32	32

**. Correlation is significant at the 0.05 level (2-tailed).

Source: Analysis of primary data, 2025

Based on Table 1, The Spearman Rank correlation test showed a statistically significant relationship between the daily operational planning function and mining safety ($r = -0.745$; $p = 0.000$; $n = 32$). The correlation coefficient indicates a strong negative relationship, meaning that changes in the planning function are significantly associated with changes in mining safety.

Table 2. Relationship Between the Team and Equipment Organization Function and Mining Safety Among Mining Employees

Variable	Correlations	X2	Y
X2	Correlation Coefficient	1.000	-.299**
	Sig. (2-tailed)	.	.003
	N	32	32
Y	Correlation Coefficient	-.299**	1.000
	Sig. (2-tailed)	.003	.
	N	32	32

**.Correlation is significant at the 0.05 level (2-tailed).

Source: Analysis of primary data, 2025

Based on Table 2, The Spearman correlation analysis showed a significant negative relationship between team and equipment organization and mining safety ($r = -0.299$; $p = 0.003$). This suggests that better organization of work teams and equipment is associated with lower workplace safety risks.

Table 3. Relationship Between the Directing Function and Mining Safety Among Mining Employees

Variables	Correlations	X3	Y
X3	Correlation Coefficient	1.000	-.613**
	Sig. (2-tailed)	.	.000
	N	32	32
Y	Correlation Coefficient	-.613**	1.000
	Sig. (2-tailed)	.000	.
	N	32	32

**.Correlation is significant at the 0.05 level (2-tailed).

Source: Analysis of primary data, 2025

Based on Table 3, The Spearman correlation analysis showed a significant strong negative relationship between the directing function and mining safety ($r = -0.613$; $p = 0.000$). This indicates that better direction and supervision are associated with reduced workplace safety risks.

Table 4. Relationship Between the Controlling Function and Mining Safety Among Mining Employees

Variables	Correlations	x4	Y
x4	Correlation Coefficient	1.000	-.916**
	Sig. (2-tailed)	.	.000
	N	32	32
Y	Correlation Coefficient	-.916**	1.000
	Sig. (2-tailed)	.000	.
	N	32	32

**.Correlation is significant at the 0.05 level (2-tailed).

Source: Analysis of primary data, 2025

Based on Table 4, The Spearman correlation analysis showed a very strong and statistically significant negative relationship between the controlling function and mining safety ($r = -0.916$; $p = 0.000$). This indicates that better control and monitoring are associated with lower workplace safety risks.

Discussion

The strong relationship between the daily operational planning function and mining safety indicates that well-structured work planning plays an important role in reducing workplace risks. Effective planning allows supervisors to allocate tasks appropriately, anticipate potential hazards, and ensure that operational procedures are carried out safely. This finding supports management theory [9] which emphasizes planning as a fundamental managerial function in achieving organizational objectives, including occupational safety.

The relationship between team and equipment organization and mining safety, although weaker than the other variables, remained statistically significant. This suggests that proper organization of work teams and the availability of suitable equipment contribute to the prevention of workplace incidents. Good team coordination and proper equipment allocation may reduce operational errors and improve compliance with safety procedures [10].

In addition, the directing function showed a strong significant relationship with mining safety. This finding highlights the importance of clear instructions, effective communication, and direct supervision in promoting safe work behavior among employees. Supervisors who consistently provide guidance and reinforce safety protocols can improve workers' adherence to standard operating procedures [11].

The controlling function was identified as the most dominant factor related to mining safety. Routine monitoring, inspection, and corrective actions are essential in minimizing workplace hazards and preventing accidents. This result indicates that effective control mechanisms are critical in maintaining a safe mining environment and strengthening the overall occupational safety culture [12].

Overall, the findings of this study suggest that strengthening supervisory functions, particularly controlling and planning, is crucial to improving mining safety performance among employees.

Conclusion

There is a significant relationship between supervisory functions and mining safety among employees at PT. Parama Radika Lestari.

The controlling function is the most dominant factor, followed by planning, directing, and organization functions.

Strengthening supervisory practices is recommended to improve the occupational safety culture in the mining environment.

Ethics approval

The ethical approval of this research was issued by the Faculty of Health and Informatics, Institut Kesehatan Payung Negeri Pekanbaru.

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