



Effect of OSH Supervision on Safe Work Behavior of Construction Workers, Ponorogo Indonesia, 2025

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Abstract

Unsafe behavior is a major contributor to occupational accidents in construction projects. In Ponorogo, local reports documented 18 construction accidents in early 2024, with most caused by unsafe acts. Effective Occupational Safety and Health (OSH) supervision is essential to ensure compliance with safety standards and reduce unsafe practices.

This study aimed to determine the effect of OSH supervision on safe work behavior among construction workers in Ponorogo, Indonesia, 2025. A quantitative cross-sectional design was applied involving 42 construction workers recruited through simple random sampling, with inclusion criteria of at least one month of active employment. Data were collected using structured questionnaires and direct observations. Variables studied were OSH supervision (low, high) and safe work behavior (unsafe, safe). Associations were analyzed using the Chi-square test and prevalence ratio (PR) with 95% confidence intervals.

Results showed that 71.4% reported high supervision, and 69.0% demonstrated safe behavior. Workers with high supervision were significantly more likely to behave safely ($p = 0.000$; $PR = 19.50$; 95% CI: 3.642–104.411).

In conclusion, OSH supervision strongly influences safe work behavior. Strengthening consistent monitoring, corrective actions, and enforcement mechanisms is recommended to improve compliance and guide policy in construction safety management.

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Introduction

Unsafe behavior in the construction sector remains a critical issue, contributing to the persistently high rate of occupational accidents. Common unsafe practices include the neglect of personal protective equipment (PPE), violation of standard operating procedures, and engaging in hazardous shortcuts under work pressure.

Globally, construction contributes substantially to occupational accidents. The International Labour Organization (ILO, 2023) reported more than 374 million non-fatal occupational accidents, with the construction sector accounting for a significant proportion. In Indonesia, construction contributed 31.9% of national occupational accidents (BPJS Ketenagakerjaan, 2023). In East Java, construction-related accidents continue to increase. Data from the Department of Manpower, Ponorogo, recorded 18 cases between January and June 2024, with 61% caused by non-compliance with safety procedures (Dinas Tenaga Kerja Ponorogo, 2024).

Although occupational safety and health (OSH) regulations such as Law No. 1/1970 (Republik Indonesia, 1970) and Government Regulation No. 50/2012 (Republik Indonesia, 2012) mandate comprehensive safety management, effective implementation remains a challenge. One key obstacle is insufficient supervision at the project level. Supervision plays a vital role in ensuring consistent adherence to OSH rules and procedures. According to Geller (2001), supervision functions as an external antecedent that reinforces safe behavior through monitoring, corrective feedback, and sanctions when necessary.

Preliminary observations at the Reog Monument construction project in Ponorogo revealed ongoing unsafe practices despite existing safety management systems. Workers frequently neglected PPE use, and near-miss incidents were reported, indicating gaps in supervisory control. These findings highlight the urgent need to examine how supervision affects workers' compliance with safe behavior in construction settings.

Therefore, this study was conducted to analyze the effect of OSH supervision on safe work behavior among construction workers at the Reog Monument Project, Ponorogo, Indonesia.

Methods

This quantitative study used a cross-sectional design at the Reog Monument Project, Ponorogo, in 2025. A total of 42 construction workers were recruited through simple random sampling. Inclusion criteria included active employment for at least one month.

Data were collected using structured questionnaires and direct field observations. Variables included: OSH supervision (low, high), assessed through PPE inspections, corrective feedback, reporting systems, and sanctions. Safe work behavior (unsafe, safe), assessed through compliance with safety rules and PPE use. Data were analyzed using the Chi-square test. The prevalence ratio (PR) with 95% confidence intervals (CI) was calculated to determine effect size. Ethical approval was obtained from the Institutional Review Board of STIKes Bhakti Husada Mulia Madiun (Protocol code; 017/E-KEPK/STIKES/BHM/VIII/2025, Date of approval: 16 August, 2025).

Results

Distribution of OSH supervision among construction workers

The results showed that most construction workers reported receiving high OSH supervision, namely 30 workers (71.4%). Meanwhile, 12 workers (28.6%) stated that the supervision they received was low.

Table 1. Distribution of OSH supervision among construction workers (n = 42)

OSH Supervision	Frequency (n)	Percentage (%)
Low	12	28.6
High	30	71.4

These results indicate that the majority of workers perceived consistent supervision at the project site, although nearly one-third of workers considered the level of supervision to be low.

Association between OSH supervision and safe work behavior

This study found a significant association between OSH supervision and safe work behavior. Workers under high supervision were more likely to perform safe behavior (61.9%) compared to those with low supervision (7.1%). Conversely, unsafe behavior was more dominant among workers with low supervision (21.4%).

Table 2. Association between OSH supervision and safe work behavior (n = 42)

OSH Supervision	Unsafe n (%)	Safe n (%)	Total n (%)	p-value	PR (95% CI)
Low	9 (21.4)	3 (7.1)	12 (28.6)	0.000	19.50 (3.642–104.411)
High	4 (9.5)	26 (61.9)	30 (71.4)		
Total	13 (31.0)	29 (69.0)	42 (100)		

The Chi-square test yielded a p-value of 0.000, indicating a significant association between OSH supervision and safe work behavior. The Prevalence Ratio (PR) of 19.500 (95% CI: 3.642–104.411) shows that workers with high supervision were almost 20 times more likely to exhibit safe behavior compared to those with low supervision.

Discussion

This study revealed that OSH supervision had a strong influence on safe work behavior among construction workers. Workers under high supervision tended to consistently use PPE and comply with safety procedures, while those with low supervision were more likely to engage in unsafe acts. These findings highlight the crucial role of supervision in reducing unsafe behavior at construction sites.

The results are consistent with previous studies. Aprilyani and Hazrina (2022) reported that supervision significantly reduces unsafe behavior among construction workers. Similarly, Widajati et al. (2021) found that safety commitment and supervision were positively associated with safe behavior. Uyun and Widowati (2025) also demonstrated that workers with higher levels of supervision committed fewer safety violations.

From a theoretical perspective, Geller (2001) emphasized that external antecedents, such as supervision, influence individual behavior. Regular monitoring, corrective feedback, and sanctions serve as reinforcement mechanisms that encourage workers to adopt safe practices. In the context of construction projects, consistent supervision supports the internalization of safe work habits among workers.

Overall, this study confirms that OSH supervision is a key factor in promoting safe work behavior in construction projects. Through direct inspection, corrective actions, reporting systems, and sanctions, supervision functions as a reinforcing factor that ensures workers' compliance with safety procedures. These findings strengthen the theoretical framework and provide practical implications for improving occupational safety management.

Conclusion

This study concluded that OSH supervision had a significant effect on safe work behavior among construction workers at the Monument and Museum Reog project in Ponorogo. Workers under high supervision were nearly 20 times more likely to behave safely compared to those with low supervision, highlighting the essential role of supervision in promoting compliance with occupational safety and health standards.

To strengthen these practices, it is recommended that project management and OSH officers enhance daily safety briefings, increase direct monitoring in high-risk activities such as working at heights, and simplify reporting mechanisms for unsafe conditions. Considering the use of tools such as STOP cards may also encourage worker participation in supervision efforts. Future studies are suggested to involve larger samples and longitudinal designs to provide deeper insights into causal relationships and other determinants of safe work behavior.

Author Contributions

Conceptualization, K.H., R.W., and A.S.M.; methodology, K.H.; formal analysis, K.H.; investigation, K.H.; data curation, K.H.; writing—original draft preparation, K.H.; writing—review and editing, K.H., R.W., and A.S.M.; visualization, K.H.; supervision, R.W. and A.S.M.; project administration, K.H. All authors have read and agreed to the published version of the manuscript.

Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of STIKES Bhakti Husada Mulia Madiun (protocol code 017/E-KEPK/STIKES/BHM/VIII/2025, date of approval: 16 August 2025).

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