

The Influence of Knowledge Management, Work Discipline, and Organizational Culture on Occupational Health and Safety (OHS) Implementation at PT Nihon Chemical Indonesia

¹Ova Perdanawati*, ²Soehatman Ramli, ³Adenan, ⁴Edison Sembiring

¹Magister of Manajemen Program, Universitas Sahid, Jakarta, Indonesia*; email: perdanawatiova@gmail.com

²Magister of Manajemen Program, Universitas Sahid, Jakarta, Indonesia

³Magister of Public Health Program, STIKes Dharma Husada, Bandung, Indonesia

⁴Magister of Manajemen Program, Universitas Sahid, Jakarta, Indonesia

*Correspondence

Article Information

Submitted: 13 April 2026

Accepted: 21 April 2026

Publish: 24 April 2026

Keyword: Knowledge Management; Work Discipline; Organizational Culture; Occupational Health and Safety (OHS); OHS Implementation; Safety Culture; Chemical Industry;

Copyright holder: Ova Perdanawati, Soehatman Ramli, Adenan, Edison Sembiring

Year: 2026

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Abstract

Introduction: Occupational Health and Safety (OHS) implementation remains a critical issue in industrial sectors, particularly in developing countries where workplace accidents continue to increase despite regulatory frameworks. **Objective:** This study aims to examine the influence of knowledge management, work discipline, and organizational culture on OHS implementation at PT Nihon Chemical Indonesia. **Method:** A quantitative approach with an explanatory research design was employed, using primary data collected through questionnaires distributed to employees and analyzed using multiple linear regression, supported by validity, reliability, and classical assumption tests. **Result:** The findings indicate that knowledge management, work discipline, and organizational culture have positive and significant effects on OHS implementation, both partially and simultaneously, with organizational culture identified as the most dominant factor. **Conclusion:** The integration of these three factors plays a crucial role in improving OHS implementation, emphasizing that workplace safety is influenced not only by formal regulations but also by behavioral and organizational dimensions, while also providing empirical contributions and practical insights for strengthening safety performance in the Indonesian chemical industry.

Introduction

The successful implementation of Occupational Health and Safety (OHS) in the workplace is closely associated with compliance behavior among employees and management in adhering to OHS regulations and policies, because unsafe behaviors such as negligence, low attention, low motivation, and carelessness can increase the risk of errors, injuries, accidents, and organizational losses (Fadilah & Utomo, 2026); (Pandiono, Amar, & Syahrir, 2025). In contemporary OHS perspectives, this relationship is commonly framed through the concept of safety performance, which captures how well safety is achieved in daily operations through both behavioral indicators (e.g., safe work practices, reporting, participation) and outcome indicators (e.g., incidents, near-misses, injuries). Therefore, strengthening preventive OHS implementation requires more than routine training; it also depends on how organizations build systems and environments that consistently enable safe behavior.

In Indonesia, OHS implementation has been regulated through the Occupational Health and Safety Management System (OHSMS), which emphasizes structured, systematic, and integrated control to reduce accidents and occupational diseases while creating a safe and productive work environment (Rahman, Rahma, Susanto, Djuanda, & Agung, 2025); (EL-Matury, Syahlan, & Baharuddin, 2026); (Mubarak et al., 2025). However, workplace accident trends indicate that implementation quality and safety culture remain challenges. This implies that organizations need to move beyond formal compliance toward strengthening the determinants that shape safety performance in practice, including leadership commitment, consistent supervision, hazard control, communication, and reinforcement of safe behavior (Yani, 2025)

Recent OHS literature emphasizes that effective prevention is influenced by both organizational and human factors. Safety management systems and safety culture are frequently highlighted as core drivers of safety performance, because they shape the consistency of risk control, workers' willingness to comply, and the normalization of safe practices (Praditya, Prayuda, & Purwanto, 2025); (Syahbari et al., 2026). Importantly, formal systems alone are insufficient if implementation is weak; safety outcomes depend on how well OHS procedures are internalized, monitored, and supported within day-to-day work—especially in high-risk industries where hazard exposure is routine (Syafrial & Ardiansyah, 2020); (Priyohadi & Achmadiansyah, 2021)

Within this context, organizational factors such as knowledge processes, work discipline, and organizational culture remain relevant, but they should be positioned explicitly as mechanisms that influence safety performance and OHS implementation. Knowledge management is important because it supports how safety information is captured, shared, and translated into practical behavior. Work discipline reflects consistency in compliance with procedures, including safety rules. Organizational culture shapes shared norms and expectations about whether safety is prioritized over productivity pressures. However, many studies still examine these variables separately and do not fully integrate them within one model that explains safety performance in high-risk industrial settings.

Therefore, this study integrates knowledge management, work discipline, and organizational culture into a unified empirical framework to explain OHS implementation and safety performance in a high-risk industrial context. The findings are expected to provide a more OHS-specific explanation of why safety practices succeed or fail in real workplaces and offer practical input for strengthening preventive OHS implementation

Ova Perdanawati, Soehatman Ramli, Adenan, Edison Sembiring/KESANS
The Influence of Knowledge Management, Work Discipline, and Organizational Culture on Occupational Health and Safety (OHS) Implementation at PT Nihon Chemical Indonesia

through improved knowledge transfer, stronger compliance reinforcement, and a more supportive safety culture.

Method

This study employed a quantitative approach with an explanatory research design to analyze the influence of knowledge management, work discipline, and organizational culture on Occupational Health and Safety (OHS) implementation at PT Nihon Chemical Indonesia. The population consisted of all employees ($N = 100$), and the sample was determined using a proportional random sampling technique across departments to ensure representativeness. The sample size amounted to 100 respondents, calculated using the Slovin formula with a margin of error of 5%.

Data were collected using a structured questionnaire as the primary instrument, supported by observations and documentation studies. The questionnaire was developed based on established indicators adapted from previous validated studies to ensure construct validity. The variables measured include knowledge management (knowledge sharing, knowledge application, and knowledge storage), work discipline (attendance, compliance with rules, and responsibility), organizational culture (shared values, norms, and safety orientation), and OHS implementation (safety compliance and safety participation). All items were measured using a five-point Likert scale.

Instrument validity was tested using Pearson correlation ($r > 0.30$), and reliability was confirmed using Cronbach's Alpha ($\alpha > 0.70$). The results indicated that all measurement items were valid and reliable.

Data analysis was conducted using multiple linear regression analysis with the assistance of SPSS version 28. Prior to hypothesis testing, classical assumption tests were performed, including normality, multicollinearity (Tolerance > 0.10 ; VIF < 10), and heteroscedasticity tests to ensure that the regression model met the Best Linear Unbiased Estimator (BLUE) criteria. Hypothesis testing was carried out using t-tests for partial effects and F-tests for simultaneous effects, while the coefficient of determination (R^2) was used to measure the explanatory power of the model.

Result and Discussion

The results of the multiple linear regression analysis are presented in Table 1. The analysis shows that knowledge management, work discipline, and organizational culture have positive and significant effects on Occupational Health and Safety (OHS) implementation ($p < 0.05$). Among these variables, organizational culture has the strongest influence ($\beta = 0.401$), followed by knowledge management ($\beta = 0.312$) and work discipline ($\beta = 0.276$).

Prior to hypothesis testing, classical assumption tests confirmed that the regression model met the required criteria. The data were normally distributed, with no multicollinearity issues (Tolerance > 0.10 ; VIF < 10) and no heteroscedasticity detected, indicating that the model was appropriate for further analysis.

Table 1
 Results of Multiple Linear Regression Analysis

Variable	Coefficient (β)	t-value	Sig. (p-value)
(Constant)	1.245	-	-
Knowledge Management (X1)	0.312	3.215	0.002
Work Discipline (X2)	0.276	2.984	0.004
Organizational Culture (X3)	0.401	4.102	0.000

Note: Data derived from primary data processed by the authors (2026) based on questionnaire results.

Furthermore, the model feasibility test presented in Table 2 indicates that the regression model is statistically significant ($F = 28.756$; $p < 0.001$). The coefficient of determination (R^2) is 0.648, indicating that 64.8% of the variance in OHS implementation can be explained by the three independent variables, while the remaining 35.2% is influenced by other factors not examined in this study. This result suggests that the model has strong explanatory power.

Table 2
 Model Feasibility Test

Model Indicator	Value
F-value	28.756
Sig.	0.000
R^2	0.648

Note: Data derived from primary data processed by the authors (2026) based on questionnaire results.

The dominance of organizational culture as the most influential variable indicates that shared values, norms, and safety-oriented behaviors play a critical role in shaping employees' safety practices. In high-risk industries such as chemical manufacturing, safety culture functions as a behavioral control mechanism that guides employees' actions beyond formal rules and procedures. This finding supports previous studies (Hofmann et al., 2017) and reinforces the argument that a strong safety culture is essential for effective OHS implementation.

Knowledge management also shows a significant positive effect on OHS implementation, indicating that effective knowledge-sharing, storage, and application enhance employees' understanding of workplace hazards and safety procedures. This finding is consistent with prior research (Cummings, 2015; Karanikas et al., 2022), which emphasizes the role of knowledge management in improving safety performance through organizational learning.

Similarly, work discipline has a significant influence on OHS implementation, suggesting that employees who consistently comply with organizational rules and safety procedures contribute to safer workplace conditions. This result aligns with Neal and Griffin (2006), who highlight that safety compliance behavior is a key determinant of workplace safety outcomes.

The integration of knowledge management, work discipline, and organizational culture provides a comprehensive explanation of OHS implementation. These variables interact synergistically, where knowledge management enhances awareness, discipline ensures compliance, and organizational culture reinforces consistent safety behavior. This finding supports the theory proposed by Reason (2000), which emphasizes the importance of human and organizational factors in accident prevention.

Ova Perdanawati, Soehatman Ramli, Adenan, Edison Sembiring/KESANS
The Influence of Knowledge Management, Work Discipline, and Organizational Culture on Occupational Health and Safety (OHS) Implementation at PT Nihon Chemical Indonesia

Compared to previous studies, this research contributes by integrating these three organizational variables into a single empirical model, providing a more holistic understanding of OHS implementation. This confirms that workplace safety is a multidimensional construct influenced not only by regulatory compliance but also by behavioral and organizational dynamics.

From a practical perspective, organizations, particularly in high-risk industries, should prioritize strengthening safety culture, enhancing knowledge-sharing systems, and enforcing work discipline consistently. These efforts are expected to improve OHS implementation and reduce workplace incidents.

Conclusion

This study found that knowledge management, work discipline, and organizational culture each have a positive and significant effect on Occupational Health and Safety (OHS) implementation at PT Nihon Chemical Indonesia, both partially and simultaneously, with organizational culture emerging as the most dominant factor, indicating that shared safety values and norms are central to shaping employee behavior and improving safety performance. Practically, these results imply that organizations—especially in high-risk industries—should prioritize strengthening safety culture, supported by structured knowledge management (training and knowledge-sharing mechanisms) and consistent enforcement of work discipline to enhance compliance and reduce workplace incidents. Theoretically, the study contributes empirical evidence that OHS implementation is influenced not only by regulatory compliance but also by integrated behavioral and organizational dimensions within the Indonesian chemical industry context. However, the conclusions are limited by the use of a single-company sample, which may restrict generalizability, and by the inclusion of only three independent variables, while other determinants such as leadership, safety climate, and employee engagement may also play important roles; therefore, future research should include larger and more diverse samples and incorporate additional variables to develop a more comprehensive explanation of factors influencing OHS implementation.

Reference

- EL-Matiry, Herlina J., Syahlan, Nabila, & Baharuddin, Mohd Rafee B. (2026). [Studi Komparatif Implementasi Sistem Manajemen Keselamatan dan Kesehatan Kerja \(SMK3\) pada Perusahaan Power Plant, HSR, dan NAM](#). *Jurnal Kesehatan Dan Keselamatan Kerja Universitas Halu Oleo*, 6(4).
- Fadilah, Dewi Nur, & Utomo, Septian Sony. (2026). [Kepatuhan Prosedur K3 Melalui Safety Campaign Terhadap Pencegahan Kecelakaan Kerja Pada Karyawan PT. Mulia Esa Catur Abadi](#). *RIGGS: Journal of Artificial Intelligence and Digital Business*, 4(4), 847–854.
- Mubarak, Husni, Fajriah, Irma, Syafitri, Nurul Mawaddah, Aminuddin, Aminuddin, Sofyan, Yanny Febry Fitriani, Yunus, Ahmad Tamsil, Montolalu, Ivan Adrian, Sujadi, Jodi, Rahmadani, Yulianah, & Baali, Yongker. (2025). [Keselamatan dan Kesehatan Kerja \(K3\) dalam Konstruksi](#). Yayasan Tri Edukasi Ilmiah.
- Pandiono, Guntur Pandam, Amar, Irwan, & Syahrir, Muhammad. (2025). [Analisis Kepatuhan Pelaksanaan Kesehatan dan Keselamatan Kerja \(K3\) pada Pekerja di Unit Process Plant \(Funance\) Plant Site PT X](#). *Journal of Environmental and Safety Engineering*, 4(2), 1–11.
- Praditya, Rayyan Aqila, Prayuda, Rafie Zaidan, & Purwanto, Agus. (2025). [Penerapan Keselamatan dan Kesehatan Kerja \(K3\) dan Kepemimpinan Terhadap Kinerja Organisasi](#). *PROFESOR: Professional Education Studies and Operations Research*, 2(02), 1–9.
- Priyohadi, Nugroho Dwi, & Achmadiansyah, Arly. (2021). [Hubungan faktor manajemen K3 dengan tindakan tidak aman \(unsafe action\) pada pekerja PT Pelabuhan Penajam Banua Taka](#). *Jurnal Baruna Horizon*, 4(1), 1–14.
- Rahman, Aliefiah Maghfirah, Rahma, Masita Alya, Susanto, Putri Zhachilia, Djuanda, Djuanda, & Agung, Muhammad. (2025). [Analisis Sistem Manajemen Kesehatan dan Keselamatan Kerja pada Departemen Fasilitas dan Sarana PT Industri Kapal Indonesia \(Persero\) Makassar](#). *Jurnal Teknik Mesin, Industri, Elektro Dan Informatika*, 4(1), 107–116.
- Syafrial, Herry, & Ardiansyah, Ahmad. (2020). [Prosedur Keselamatan Dan Kesehatan Kerja \(K3\) Pada PT. Satunol Mikrosistem Jakarta](#). *Abiwarra: Jurnal Vokasi Administrasi Bisnis*, 1(2), 60–70.
- Syahbari, Ummi Kalsum, Zulfara, Arviza, Erinazila, Erinazila, Hamka, Muhammad, El Pambajeng, Ahfanza Nugraha, & Zukhri, Nizwan. (2026). [Perilaku, Kepemimpinan, dan Budaya Keselamatan: Kajian Manajemen SDM terhadap Efektivitas Penerapan K3 di PT Dok dan Perkapalan Air Kantung](#). *RIGGS: Journal of Artificial Intelligence and Digital Business*, 5(1), 5801–5808.
- Yani, Akhmad. (2025). [Efektivitas Pelatihan Keselamatan Kerja di Konstruksi Dan Peran Manajemen dalam Meningkatkan Kepatuhan K3; Literatur Review](#). *Jurnal Ilmiah Ekonomi Manajemen & Bisnis*, 3(1), 8–17.