International Journal Of Health, Engineering And Technology (IJHET) *E-ISSN 2829 - 8683*
Volume 4, Number 6, March 2026, *Page. 2242 - 2248*
Email : editorijhess@gmail.com

Analysis Of The Influence Of *Safety Climate* On Occupational Safety Behavior In The Industry: *Literature Review*

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Abstract

Occupational Health and Safety (OHS) is a crucial component of industrial management systems aimed at reducing workplace accidents, injuries, and losses arising from occupational risks. One of the factors influencing safety performance is safety climate, defined as employees' perceptions of the extent to which the organization prioritizes and implements safety practices. This study aims to analyze the effect of safety climate on safety behavior in industrial settings. The method used was a literature review, limited to publications from the last five years in both Indonesian and English, particularly focusing on high-risk industries. The review of five selected journals indicates that safety climate has a positive and significant influence on safety behavior at work. The main factors shaping safety climate perceptions include management commitment, safety communication, OHS training, and safety leadership. Furthermore, safety climate acts as a mediating variable linking safety leadership and safety knowledge to safe work behavior. In conclusion, the stronger employees' perceptions of safety climate, the higher their level of compliance and participation in workplace safety practices within industrial environments.

Keywords: Industry, Occupational Health And Safety, Safety Climate.

INTRODUCTION

Occupational Safety and Health (K3) is a fundamental aspect in the implementation of operational activities in the industrial sector. K3 is not only an obligation of the company, but also a basic right of workers that is included in Human Rights (HAM) (Sarbiah, 2023). The implementation of K3 aims to protect workers from the risk of accidents and occupational diseases, while supporting increased productivity and company sustainability (Permatasari et al., 2024). Work accidents in Indonesia itself = still show high numbers. Data from the Ministry of Manpower and Transmigration noted that in 2023 there were 370,747 cases of work accidents, with 93.83% coming from wage earners, 5.37% from non-wage earners, and 0.83% from the construction services sector (Wahyuning et al., 2023). The high number shows that the work safety system in various industrial sectors still needs strengthening, especially in the aspect of worker behavior.

In general, the main factors that affect work accidents are human error and work environment factors (Irhandy, 2022). Human factors are related to unsafe behaviors such as non-compliance with safety procedures, while environmental factors include unsafe working conditions, including the use of complex machinery and equipment. Irhandy (2022) stated that most work accidents are caused by human factors, which shows the importance of intervention in the aspect of occupational safety behavior. The International Labour Organization (ILO) in Wonua et al. (2023) explained that the development of globalization and technological advances increase the complexity of work risks. The increasingly modern transformation of the industry requires companies to not only provide safety procedures, but also to build safety management systems capable of shaping safe working behavior.

One of the approaches that is widely studied in the K3 literature is the concept *of safety climate*. *The safety climate* reflects employees' perception of the seriousness of the organization in managing safety aspects through policies, procedures, and operational practices. If the perception is positive, it has the potential to increase workers' tendency to behave according to occupational safety standards, such as compliance with procedures, use of PPE (personal protective equipment), and active participation in safety programs (Marzuki et al., 2018). In addition, organizational commitment and consistent safety policies also contribute to the formation of a strong safety culture (Nosari & Adiati,

2021). Although the findings of previous studies showed a correlation between *safety climate* and safety behavior, the results of previous studies still showed inconsistencies related to the most dominant dimension of safety climate influencing worker behavior.

Some studies emphasize the role of management commitment as a key determinant, while others identify safety communication, training, and supervision as more influential factors. In addition, most of the research still focuses on specific industry sectors and has not provided a comprehensive synthesis of . The pattern of the influence of safety climate on general occupational safety behavior in various industrial sectors. This condition shows that there is a research *gap* that requires further analysis of how the overall safety climate affects occupational safety behavior and what dimensions are most dominant in shaping these behaviors in the industrial sector. Based on this description, this study is focused on analyzing the influence of safety climate on occupational safety behavior in industry. The formulation of the problem in this study is, how does the influence of safety climate on occupational safety behavior in industry and what are the most dominant dimensions of safety climate that affect work safety behavior. This study aims to analyze the influence of safety climate on occupational safety behavior in industry and identify the dimensions that play the most role in shaping occupational safety behavior in the industrial sector.

The benefits of research can theoretically make a conceptual contribution as well as enrich the development of academic science in the Occupational Safety and Health cluster, especially in *the safety climate* regarding the influence on occupational safety behavior in the Petrochemical industry. As well as practically providing important information about the correlation between *safety climate* and occupational safety behavior conditions in the Petrochemical Industry. In addition, it can also provide information on the relationship between organizational management and *the safety climate* that aims to protect employees and increase company productivity.

RESEARCH METHODS

This study uses *a literature review* method with a descriptive approach to analyze the influence of *safety climate* on occupational safety behavior in industry. Literature searches are conducted through Google Scholar, Scopus, and ScienceDirect. Articles reviewed are limited to the last five years of publication (2021–2025) to ensure the relevance and novelty of the research. The search strategy used keywords: *"safety climate" AND "occupational safety" AND "industry"*. The selected article is a quantitative empirical research that discusses the influence or relationship of *safety climate* on occupational safety behavior and is available in full text form. The selection of articles is carried out in stages through the evaluation of the title, review of the abstract, and a full reading of the content of the article. Articles that met the criteria were then analyzed descriptively to identify patterns of findings related to the influence *of safety climate* on occupational safety behavior in the industry.

RESULTS No	Author	Year	Title	Method	Result
1	Kumala & Ramdhan	2021	*The Relationship Between Safety Climate and Safety Behavior in Project Workers PLN PUSMAPRO PST JATENG I*	Quantitative research with cross-sectional design. Sample of 120 construction project workers. Data were collected using a Likert scale questionnaire and analyzed using the Pearson correlation test.	The results of the study showed that there was a significant relationship between safety climate and safety behavior (r = 0.402; p = 0.000). The dimension of K3 management and communication commitment has the greatest contribution to the formation of safety behavior. The higher the perception of workers towards management support in K3, the higher

					the level of compliance and worker safety participation in the project.
2	Zulfani Haki, Fuad Achmadi, Prima Vitasari	2025	*Analysis of Climate Safety Factors on Occupational Safety and Health in Construction Work in PT XYZ Bunyu Field*	Quantitative research uses Exploratory Factor Analysis (EFA). Sample of 180 construction workers. The instrument consists of 39 items and 8 safety climate indicators.	The results of the study showed a total factor variant of 86.538% which explains the safety climate construct. The most dominant factor is training and compliance with K3, which suggests that improving worker competencies greatly influences the perception of the safety climate. Promotional dimensions K3 being the factor with the lowest contribution. All indicators are declared valid and reliable so that the measurement model is considered strong.
3	Putu Nadi Astuti, Zulkifli Djunaidi, Arifah Alfiyyah	2025	*Evaluating Safety Culture Maturity in Indonesian Petrochemical Industry to Strengthen Occupational Health Systems*	Mixed-methods with cross-sectional design. Sample of 513 respondents from 10 petrochemical companies in Indonesia. The instrument used the Safety Culture Maturity Questionnaire (SCMQ), observation, and document review.	The results of the study showed that there was a significant difference in the commitment dimension between multinational and non-multinational companies ($p<0.05$). The implementation of safety management systems such as ISO 45001 and PSM strengthens the maturity of the safety culture. Management commitment is the most dominant factor in strengthening the work safety system.
4	Novrianty Rizky, Agus Mansur, Hari Purnomo, Adithya Sudiarno, Ivan Darma Wangsa	2025	*Influence of Safety Leadership Styles on Safety Behaviour: The Mediating Role of Safety Climate, Knowledge, and Motivation in Indonesia's Oil and Gas Construction Project*	Quantitative research uses Structural Equation Modeling (SEM). A sample of 675 oil and gas construction project workers in Indonesia.	The results of the study show that *the safety climate* is significantly related to the level of safety knowledge and occupational safety behavior. In addition, *safety knowledge* has been proven to act as an intermediate variable that strengthens the relationship between *safety climate* and safety behavior. Transformational leadership styles indirectly improve the safety climate through increased motivation and safety knowledge. The research model has a good goodness-of-fit, Showing that safety climate is a key

					variable in shaping safety behavior in the oil and gas industry.
5	Ahmad Rizki Sridadi, M. Fikri Himmawan, Sri Yayu Ninglasari, dan Mohammad Nadhiful Fiqqih	2024	*The Mediating Role of Workplace Safety Climate on Safety Leadership and Safety Knowledge in Indonesian Petrochemical Employees*	Quantitative research with cross-sectional design. Data was collected through questionnaires to employees of the petrochemical industry in Indonesia. The analysis uses Structural Equation Modeling (SEM) to test the mediating relationships between variables.	The results of the study show that workplace safety climate plays a significant role as a significant mediating variable between safety leadership and safety knowledge on safety performance. Effective safety leadership increases employees' perception of safety climate. Safety knowledge also contributes to improving the safety climate. A positive safety climate directly improves work safety behavior. Therefore, *the safety climate* functions as an integrative mechanism that strengthens the influence of safety leadership and workers' understanding of K3 in encouraging the formation of safe and responsible work behaviors.

RESULTS AND DISCUSSION

Based on the results of a review of five journals, it can be understood that the *safety climate* is something that has a significant influence on work safety behavior in various industrial sectors, especially in high-risk jobs such as construction, oil and gas, and the process industry. Conceptually, *the safety climate* describes the subjective assessment of workers regarding the level of organizational commitment in placing safety as the top priority, both through formal policies, the implementation of procedures, and the consistency of managerial actions in daily operational activities. The assessment further affects the way workers interpret work risks, form attitudes towards safety, and determine behavioral tendencies displayed during their duties.

Research by Kumala and Ramdhan (2021) shows that there is a positive relationship between safety climate and occupational safety behavior. These findings indicate that when workers feel real support from management for the implementation of K3, compliance with safety procedures increases. The dimension of management commitment and safety communication is the dominant factor in shaping this behavior. Managerially, this emphasizes that the success of the K3 program is not only determined by the availability of written rules, but also by the consistency of the leadership in showing commitment through concrete actions, such as routine supervision, the provision of safety facilities, and open communication related to occupational risks.

These findings are in line with the research of Zulfani Haki et al. (2025) identifying that training and compliance with K3 are the most dominant factors in the safety climate construct. These results show that improving worker competencies through systematic safety training programs is able to strengthen a positive perception of the safety climate. From a management perspective, training is not just an administrative obligation, but a strategic investment to build risk awareness and individual

responsibility for occupational safety. When workers have a good understanding of hazards and control procedures, the tendency to behave unsafely can be minimized.

The research of Putu Nadi Astuti et al. (2025) broadens the understanding of safety climate by emphasizing the importance of the maturity of safety culture and organizational commitment. Significant differences in the dimensions of commitment between multinational and non-multinational companies suggest that structural support and an integrated safety management system contribute to the maturity of the safety culture. The implementation of international standards such as ISO 45001 and process safety management systems strengthens the integration of safety in organizational systems. Managerially, these findings indicate that the safety climate will develop optimally if safety is placed as part of a business strategy, not just a regulatory obligation.

Research by Novrianty Rizky et al. (2025) shows that *safety climate* has a significant relationship with *safety knowledge* and *safety behavior*. *Safety knowledge* has been shown to mediate the relationship between safety climate and safety behavior. This means that a positive safety climate encourages increased employee knowledge of work procedures and risks, which ultimately improves safe behavior. In the context of management, it emphasizes that the dissemination of safety information and organizational learning is an important component in building an effective safety system. Without a continuous learning mechanism, the safety climate is difficult to develop consistently.

The above findings are further strengthened by the research of Ahmad Rizki Sridadi et al. (2024) which places *workplace safety climate* as a mediating variable between *safety leadership* and *safety knowledge* on *safety performance*. Effective safety leadership has been proven to improve workers' perception of the safety climate, which further impacts improved safety performance. This shows that leadership style has a strategic role in forming a safe work environment. From a managerial perspective, leaders not only function as decision-makers, but also as role models in the implementation of occupational safety.

In summary, the five studies show that safety climate is a key variable that bridges individual factors (knowledge, motivation), leadership factors, and organizational factors in shaping occupational safety behavior. Safety climate serves as a psychological and structural mechanism that influences how workers interpret the importance of safety in the workplace. When organizations consistently prioritize safety through policies, communication, training, and leadership examples, safe work behavior will be systemically formed.

The managerial implications of the results of this literature review emphasize that strengthening the safety climate must be carried out through a comprehensive approach, including: increasing top management commitment, strengthening two-way communication related to occupational risks, implementing competency-based safety training, implementing standardized safety management systems, and developing safety-oriented leadership styles. This strategy not only has an impact on reducing the number of work accidents, but also increases productivity and organizational sustainability. Thus, based on the synthesis of the five journals, it can be seen that *the safety climate* has a significant influence on occupational safety behavior in the industry. The safety climate is not only a supporting factor, but a strategic element in safety management that determines the effectiveness of the implementation of K3 as a whole.

CONCLUSION

Based on the results *of a literature review* of five relevant journals, it can be concluded that *the safety climate* has a significant influence on occupational safety behavior in various industrial sectors, especially in high-risk jobs such as oil and gas (oil and gas), construction, and the manufacturing industry. All of the studies analyzed showed that workers' perception of a positive safety climate correlated with increased adherence to safety procedures as well as active participation

in K3 practices. The most dominant dimensions in shaping the safety climate include management commitment, safety communication, K3 training, and safety leadership.

Consistent and integrated management commitments in organizational policies have proven to be a key factor in strengthening safety culture. In addition, training and improvement of safety knowledge play an important role as an important mechanism that mediates the relationship between safety climate and occupational safety behavior. These findings confirm that safety climate is not only a perceptual psychological variable, but a strategic element in the occupational safety management system. The safety climate serves as a link between organizational policies, leadership styles, and individual behavior in creating a safe work environment. Therefore, strengthening the safety climate needs to be a priority in the management of K3 in the industry to reduce the risk of work accidents and improve organizational performance in a sustainable manner.

REFERENCES

Astuti, P.N., Djunaidi, Z. and Alfiyyah, A. (2025) .Evaluating Safety Culture Maturity in Indonesian Petrochemical Industry to Strengthen Occupational Health Systems, *Jurnal Media Publikasi Promosi Kesehatan Indonesia*, pp. 597–603.

Ardiansyah, R., & Salendu, A. (2022). Hubungan antara Iklim Safety dan Ambiguitas Peran terhadap Kinerja Safety. *Jurnal Diversita*, *8*(1), 85-92.

Dzaki, M., Widajati, N., & Akrimah, W. D. (2023). Hubungan Pengetahuan, Persepsi, dan Punishment dengan Safety Behavior pada Pekerja Outsourcing Bagian Packer. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal*, *13*(3), 1011-1022.

Haki, Z., Achmadi, F. and Vitasari, P. (2025) 'Analisis Faktor Safety Climate terhadap Keselamatan dan Kesehatan Kerja pada Pekerjaan Konstruksi di PT XYZ Bunyu Field', *Jurnal Rekayasa Sistem Industri*, 14(1), pp. 22–30.

Irhandy, G. (2022). Analisis Pengaruh Faktor Personal dan Faktor Organisasi terhadap Perilaku Tidak Selamat pada Pekerja Konstruksi. *National Journal of Occupational Health and Safety*, *3*(1), 6.

Kumala, D. and Ramdhan, M. (2021).Hubungan Antara Iklim Keselamatan dengan Perilaku Keselamatan pada Pekerja Proyek PLN PUSMAPRO PST JATENG I. *National Journal of Occupational Health and Safety: Vol. 2*, pp42-46.

Marzuki, H., Sularso, R. A., & Purbangkoro, M. (2018). Pengaruh Budaya Keselamatan Kerja, Kepimimpinan Dan Motivasi Terhadap Kepuasan Kerja Dan Kinerja Karyawan Pada Perusahaan Minyak Dan Gas Bumi "X" Di Propinsi Kalimantan Timur. *BISMA: Jurnal Bisnis Dan Manajemen*, *12*(1), 51-65.

Mawangi, P. A., Yoto, Y., & Suyetno, A. (2024). Implementasi Kesehatan Dan Keselamatan Kerja di Pabrik Mi Tulungagung. *Jurnal Pengabdian pada Masyarakat Ilmu Pengetahuan dan Teknologi Terintegrasi*, *9*(1), 1-11.

Melzanda, R. N. (2022). *Laporan Pelaksanaan Magang Di PT Petrokimia Gresik Periode Februari-Maret Tahun 2022 Implementasi K3 Pada Pekerjaan Di Ruang Terbatas (Confined Space) Unit Asam Fosfat Pabrik III PT Petrokimia Gresik.*

Nosary, I. P., & Adiati, R. P. (2021). Pengaruh kepemimpinan tranformational dan safety climate terhadap safety behavior di mediasi oleh safety knowledge. *Buletin Riset Psikologi Dan Kesehatan Mental (BRPKM)*, *1*(1), 756-767.

Puspitarini, M. Y., & Martiana, T. (2024). Safety Climate and Safety Leadership Influence on Safety Performance in East Kalimantan Heavy Equipment Employees. *Media Gizi Kesmas*, *13*(2), 641-651

Permatasari, I., Windusari, Y., Novrikasari, N., Sunarsih, E., & Fajar, N. A. (2024). Faktor Penyebab Kejadian Kecelakaan Kerja Pada Pekerja Perusahaan Tambang di Indonesia: Sistematik Literatur Review. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal*, *14*(2), 677-684.

Rizky, N., Mansur, A., Purnomo, H., Sudiarno, A. and Wangsa, I.D. (2025) 'Influence of Safety

Leadership Styles on Safety Behaviour: The Mediating Role of Safety Climate, Knowledge, and Motivation in Indonesia's Oil and Gas Construction Project', *International Journal of Safety and Security Engineering*, 15(1), pp. 1–14.

Sarbiah, A. (2023). Penerapan pelaksanaan keselamatan dan kesehatan kerja (K3) pada karyawan. *Health Information: Jurnal Penelitian*, 15(2). e1210-e1210

Sridadi, A.R., Himmawan, M.F., Ninglasari, S.Y. and Fiqqih, M.N. (2024) 'The Mediating Role of Workplace Safety Climate on Safety Leadership and Safety Knowledge in Indonesian Petrochemical Employees', *Jurnal Kesehatan Lingkungan*, 16(3), pp. 308–320.

Wahyuning, C. S., Al Badawi, A. F., & Aisah, M. R. (2023). Kajian Implementasi Behavior Based Safety pada Industri Besar di Indonesia. In *Seminar Nasional Teknik dan Manajemen Industri* (Vol. 2, No. 1, pp. 142-153).

Wonua, A.R., Hendrik, H. & Yulianti, Y., 2023. *Determinan Perilaku Keselamatan Kerja: Sebuah Analisis Empiris Perusahaan Pertambangan. Jurnal Ilmu Ekonomi & Sosial*, 14(1), pp.55–63