STUDY OF EMPLOYEES' SAFETY BEHAVIOR IN THE PRODUCTION WORKPLACE IN THE PLASTICS INDUSTRY: A CASE STUDY OF A FACTORY IN CHACHOENGSAO PROVINCE

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Abstract

This research investigates the safety behavior of production employees in the plastics industry and examines the factors influencing this behavior at a factory in Chachoengsao Province. The study employs both document analysis and quantitative research to assess occupational health and safety conditions in the Thai manufacturing industry, with a focus on how these conditions influence safety behavior. The research specifically targets 30 production employees in the company. Data were gathered using a questionnaire developed through a literature review, divided into four sections: general information, knowledge of workplace safety, attitude towards workplace safety, and safety behavior. Responses were measured on a 5-point Likert scale. The data were analyzed using descriptive and inferential statistics, including Multiple Regression Analysis (MRA) via SPSS software.

The analysis found that safety knowledge significantly influences safety behavior (B = 0.297, p = 0.006), indicating that greater safety knowledge leads to better safety practices. The intercept value of 3.212 suggests a baseline level of safety behavior independent of explicit safety knowledge, likely reflecting organizational culture or regulatory compliance. However, safety attitude was not found to have a significant impact on safety behavior, pointing to the potential influence of other factors.

This research underscores the importance of safety knowledge in fostering safe workplace practices. Enhancing safety training programs and integrating them into safety management systems can significantly improve workplace safety and reduce accidents. Future studies should explore other variables that may impact safety behavior to develop more effective safety interventions.

Keywords: Safety Behavior, Safety Knowledge, Safety Attitude, Plastics Industry

Introduction

The Thai industrial sector is currently facing several critical challenges due to the uncertainty of the global economic order and rapid technological changes (Toh, M. Y., & Zhang, Y., 2022). These challenges are particularly pronounced in the manufacturing sector, which has seen significant growth in recent years, especially in industries such as refrigerator gasket production, magnetic strip manufacturing, flexible PVC tubing, and plastic injection molding. This growth has heightened the need for urgent attention to workplace safety issues, as neglecting them can lead to accidents or unexpected incidents (International Labour Organization [ILO], 2019). In these rapidly expanding industries, the risks associated with unsafe work practices must be systematically addressed (Asian Development Bank [ADB], 2020).

The manufacturing industry remains a key driver of Thailand's economic expansion, providing employment opportunities for many individuals due to its perceived stability and favorable welfare benefits (National Economic and Social Development Council [NESDC], 2021). Moreover, the adoption of modern technologies in manufacturing has significantly enhanced the productivity and efficiency of the workforce, making the sector increasingly attractive to Thai laborers (Bank of Thailand, 2020). However, as technological advancements improve production processes, safety risks also escalate, requiring robust interventions to protect workers.

A central factor influencing workplace safety is organizational culture, which includes the shared beliefs, values, and behaviors that guide employees' actions (Glendon & Clarke, 2016). Cultivating a safety-focused organizational culture is essential for promoting safe practices and preventing accidents. An organization's culture can be likened to the mindset of an individual; thus, instilling the right safety attitudes, beliefs, and values in employees is crucial for achieving safe behavior in the workplace (Amirah, N. A., et al., 2024). This aligns with the concept of Total Safety Culture (TSC), which emphasizes the importance of a comprehensive safety approach in high-risk industries such as manufacturing, petrochemicals, and mass transportation (Bergheim, K., et al., 2013).

Workplace accidents are predominantly caused by unsafe actions, which account for approximately 88% of accidents, including failing to wear personal protective equipment (PPE) (Health and Safety Executive [HSE], 2019). Unsafe conditions, such as disorganized work environments, contribute to about 10% of accidents, while natural disasters, such as lightning strikes and floods, represent around 2% of incidents (International Labour Organization [ILO], 2020). These accidents not only affect employees, who may suffer serious injuries or loss of life, but also impact organizations by reducing productivity and increasing costs associated with recruiting and training new staff (Dodoo, J. E., & Al-Samarraie, H., 2021).

Given these challenges, it is critical for organizations to implement effective occupational health and safety management systems. Such systems raise employee awareness, improve safety knowledge, and foster a safer and healthier working environment (Gillen et al., 2002). By addressing key elements of workplace safety—such as safety knowledge, safety attitude, and safety behavior—organizations can significantly reduce the risk of accidents and enhance overall safety performance (Wu, C., et al., 2021).

This study aims to examine the safety behavior of production employees in the plastics industry and identify the factors influencing their safety practices. The key areas of focus include: The objective of this study is to examine the safety behavior of production employees at a company located in Gateway City Industrial Estate, Chachoengsao Province, which manufactures refrigerator gaskets, magnetic strips, flexible PVC tubing, and plastic injection molding. Additionally, the study aims to identify and analyze the factors that influence safety behavior among these employees. By exploring both the safety practices and the underlying factors contributing to these behaviors, the research seeks to provide valuable insights that can enhance safety management and reduce workplace accidents in the manufacturing sector.

By investigating these factors, the study seeks to provide insights that can inform safety interventions in the Thai manufacturing sector and contribute to reducing workplace accidents.

Methods

This research aims to study the factors influencing safety behavior among production employees The research methodology is divided into several sections as follows:

Population and sample

The population are 30 employees in a company manufacturing and using a purposive sampling method with 30 samples in production.

Variables Used in the Research:

Independent Variables (X): Gender, Age, Education Level, Work Experience, Safety Knowledge, Safety Attitude.

Dependent Variables (Y): Safety Behavior in the Workplace: Employee Work Practices, Tools and Equipment, Work Environment, Safety Management.

The study on the number and percentage of the sample group classified by general information found that the majority of the sample group is male, accounting for 60%, while females account for 40%. Most of the sample group falls within the age range of 31-40 years, accounting for 43.30%. The majority have an education level of secondary/vocational,

accounting for 86.70%. Most of the sample group hold positions as production staff/technicians, accounting for 73.30%, and most have work experience of more than 5 years but less than 10 years, accounting for 50.00%.

Research instruments

The researcher presents the questionnaire to the advisor to check for content accuracy and language correctness. Three experts review the questionnaire for content validity using the Index of Consistency (IOC) method. Questions with an IOC value between 0.50 and 1.00 are retained, while those with values below 0.50 are revised or removed (Kamket, W., 2008). All questions achieve an IOC score above 0.60, ensuring their validity. The questionnaire is trialled with 30 non-sample respondents, and the reliability is assessed using Cronbach's alpha coefficient, which ranges from 0.547 to 0.979, indicating acceptable reliability.

The questionnaire used in this study is developed based on a thorough literature review and relevant research. It consists of four parts:

Part 1: General Information

This section includes demographic questions about the respondents, such as gender, age, education level, job position, work experience, and duration of employment.

Part 2: Knowledge of Workplace Safety

This section measures the respondents' knowledge of workplace safety, with responses on a five-point Likert scale ranging from "very high" to "very low."

Part 3: Attitude Towards Workplace Safety

This section evaluates the respondents' attitudes towards workplace safety, including adherence to safety rules and use of equipment, also measured on a five-point Likert scale.

Part 4: Workplace Safety Behavior

This section assesses the frequency of safety behaviors in the workplace, with responses on a five-point Likert scale ranging from "never" to "always."

Data collection and analysis

Data is collected from production employees, and statistical analysis is performed using SPSS software. Descriptive statistics are used to summarize the data, and multiple regression analysis is conducted to examine the relationships between variables.

Results

Results of Safety Knowledge Analysis in the Workplace

Table 1 Mean and Standard Deviation of Safety Knowledge

Safety Knowledge in the Workplace	Mean	S.D.	Interpretation
1. Able to apply the knowledge and understanding gained from training to enhance skills in emergency response.	4.67	0.48	Very High
2. Able to use the knowledge and understanding gained from fire drill training to perform actions correctly during an incident.	4.47	0.51	Very High
3. Knowledge from training about work procedures from supervisors before starting work to understand the safety system at work.	4.47	0.51	Very High
4. Able to apply the knowledge and understanding gained from workplace safety training.	4.40	0.50	High
5. Safety Week activities can genuinely increase knowledge, skills, and understanding in performing work.	3.63	0.67	High
6. Employees believe that the knowledge gained from first aid training can be practically applied during accidents.	4.70	0.47	Very High
7. Training employees about the correct methods and steps for safe working practices (WI).	4.87	0.35	Very High
8. Studying the company’s safety manual helps reduce workplace accidents.	4.87	0.35	Very High
9. Importance is given to enhancing knowledge and skills in safety, occupational health, and working environment.	4.37	0.72	High
10. Employees receive training on safety risk assessment, occupational health, and working environment, and can apply this knowledge in practice.	4.27	0.69	High
Overall	**4.47**	**0.31**	**High**

From Table 1, the analysis of safety knowledge in the workplace reveals that several items received "Very High" ratings. The highest ratings were given to training on safe working practices (WI) and studying the company’s safety manual, both with a mean score of 4.87 (S.D. = 0.35). Employees' ability to apply first aid training during accidents also received a "Very High" rating with a mean score of 4.70 (S.D. = 0.47), as did their application of knowledge gained from emergency response training (mean score of 4.67, S.D. = 0.48). Additionally, the ability to use knowledge from fire drill training and understanding work procedures provided by supervisors both scored 4.47 (S.D. = 0.51), also interpreted as "Very High."

Other aspects of safety knowledge were rated "High," such as applying workplace safety training knowledge (mean score of 4.40, S.D. = 0.50), participating in Safety Week activities (mean score of 3.63, S.D. = 0.67), and receiving training on safety risk assessment (mean score of 4.27, S.D. = 0.69). Overall, the mean score of 4.47 (S.D. = 0.31) indicates that safety knowledge in the workplace is generally strong, with particular emphasis on critical safety practices and emergency preparedness.

Results of Safety Attitude Analysis

Table 2 Mean and Standard Deviation of Safety Attitude

Safety Attitude	Mean	S.D.	Interpretation
1. Employees can apply the knowledge and understanding gained from training to enhance skills in emergency response.	4.67	0.48	Very High
2. Employees can use the knowledge and understanding gained from fire drill training to perform actions correctly during an incident.	4.63	0.49	Very High
3. Employees receive knowledge from training about work procedures from supervisors before starting work to understand the safety system at work.	4.20	0.41	High
4. Employees can apply the knowledge and understanding gained from workplace safety training.	1.50	0.97	Low
5. Employees believe that Safety Week activities can genuinely increase knowledge, skills, and understanding in performing work.	4.40	0.67	High
6. Employees believe that the knowledge gained from first aid training can be practically applied during accidents.	4.83	0.38	Very High
7. Training employees about the correct methods and steps for safe working practices (WI).	4.83	0.38	Very High
8. Studying the company's safety manual helps reduce workplace accidents.	4.30	0.53	High
9. Employees prioritize enhancing their knowledge and skills in safety, occupational health, and the working environment.	1.33	0.66	Very Low
10. Employees receive training on safety risk assessment, occupational health, and the working environment, and can apply this knowledge in practice.	1.27	0.78	Very Low
Overall	**3.60**	**0.28**	**High**

From Table 2., the analysis of safety attitude shows that the overall mean score is 3.60 with a standard deviation of 0.28, interpreted as "High." Specific items such as the ability to apply training knowledge for emergency response, fire drill procedures, and first aid training received the highest ratings with mean scores of 4.67, 4.63, and 4.83 respectively, all interpreted as "Very High." Other aspects such as the participation in Safety Week activities and studying the company's safety manual were also rated highly. However, the application of safety training knowledge and the prioritization of enhancing safety knowledge received lower ratings, indicating areas that may require further attention.

Results of Safety Behavior Analysis in the Workplace

Table 3 Mean and Standard Deviation of Safety Behavior in the Workplace

Safety Behavior in the Workplace	Mean	S.D.	Interpretation
Employee Work Practices			
1. Engaging in unsafe behaviors, such as joking around while working, does not affect normal work.	4.73	0.52	Very High
2. Working while physically or mentally unfit has no effect on accident occurrence.	5.00	0.00	Very High
3. Employees' strict adherence to safety practices reduces accidents.	4.70	0.53	Very High
4. Employees consuming alcohol or intoxicants can still perform their duties normally.	5.00	0.00	Very High
Overall Employee Work Practices	**4.86**	**0.19**	**Very High**
Tools and Equipment			
5. Regular maintenance and checks on machinery ensure it is always ready for use.	4.93	0.25	Very High
6. Updating equipment regularly to prevent workplace hazards.	4.70	0.47	Very High
7. Provision of personal protective equipment meeting safety standards.	4.67	0.55	Very High
8. Regular maintenance of tools and machinery as scheduled.	4.80	0.41	Very High
Overall, Tools and Equipment	**4.78**	**0.30**	**Very High**
Work Environment			
9. Improving the work environment and facilities such as drinking water, restrooms, and break rooms.	4.37	0.56	High

Safety Behavior in the Workplace	**Mean**	**S.D.**	**Interpretation**
10. Workplace cleanliness, proper ventilation, and sufficient lighting.	4.57	0.57	Very High
11. Regular maintenance and repair of the work area to ensure safety.	4.77	0.43	Very High
12. Work environment suitability for the nature of the work to ensure safety.	4.67	0.48	Very High
Overall Work Environment	**4.59**	**0.39**	**Very High**
Safety Management			
13. Immediate first aid provided in case of employee injury.	4.70	0.84	Very High
14. Reporting accidents to supervisors promptly.	5.00	0.00	Very High
15. Reporting hazardous conditions to supervisors immediately to prevent accidents.	4.93	0.25	Very High
16. Ability to work safely without supervision.	4.50	0.78	Very High
Overall Safety Management	**4.78**	**0.33**	**Very High**
Overall Safety Behavior in the Workplace	**4.75**	**0.18**	**Very High**

From Table 3., the study of the mean and standard deviation of safety behavior in the workplace shows that: Employee Work Practices have a very high level of safety behavior ($\bar{x}$=4.86, S.D.=0.19). Tools and Equipment also have a very high level of safety behavior ($\bar{x}$=4.78, S.D.=0.30). Work Environment shows a very high level of safety behavior ($\bar{x}$=4.59, S.D.=0.39). Safety Management indicates a very high level of safety behavior ($\bar{x}$=4.78, S.D.=0.33). Overall, the safety behavior in the workplace is at a very high level ($\bar{x}$=4.75, S.D.=0.18).

Results of the Relationship Between Safety Knowledge, Safety Attitude, and Safety Behavior in the Workplace.

Table 4 Relationship between Safety Knowledge, Safety Attitude, and Safety Behavior in the Workplace

Correlation		Safety Knowledge	Safety Attitude	Safety Behavior
Safety Knowledge	Pearson Correlation		0.133	0.512**
	Sig. (2-tailed)		0.484	0.004
Safety Attitude	Pearson Correlation			0.158
	Sig. (2-tailed)			0.404

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4., The analysis of the relationship between safety knowledge, safety attitude, and safety behavior shows that safety knowledge has a significant positive correlation with safety behavior (r = 0.512, p = 0.004), indicating that higher safety knowledge leads to better safety practices. However, there is no significant correlation between safety knowledge and safety attitude (r = 0.133, p = 0.484), nor between safety attitude and safety behavior (r = 0.158, p = 0.404).

Importantly, the correlations do not indicate multicollinearity, meaning Multiple Regression Analysis (MRA) can be safely applied. Overall, the results emphasize that safety knowledge plays a crucial role in influencing safe behavior in the workplace, while safety attitude alone does not have a direct impact.

Table 5 Multiple Regression Analysis of Predicting Factors: Safety Knowledge and Safety Attitude on Safety Behavior in the Workplace

Variable	B	SE	Beta	*t*	*p-value*
Constant	3.212	0.548		5.863	0.000
Safety Knowledge (X_1)	0.297	0.098	0.500	3.013	0.006*
Safety Attitude (X_2)	0.060	0.108	0.092	0.552	0.586
R =0.520 R^2= 0.270	Adj.R^2= 0.216	SEE = 0.16277			F = 5.002.

From Table 5. the multiple regression analysis (MRA) Model Evaluation, the results of the multiple regression analysis, showing the relationship between **safety knowledge** (X1),

safety attitude (X2), and **safety behavior** in the workplace. The following findings are derived from the analysis:

Constant: The constant value is 3.212, with a standard error of 0.548 and a t-value of 5.863, which is highly statistically significant ($p < 0.000$). This constant represents the baseline level of safety behavior when the predictors (safety knowledge and safety attitude) are not considered.

Safety Knowledge (X1): The coefficient (B) for safety knowledge is 0.297, with a standard error of 0.098. The standardized coefficient (Beta) is 0.500, with a t-value of 3.013, which is statistically significant ($p = 0.006$). This demonstrates that safety knowledge is a significant predictor of safety behavior in the workplace, meaning that employees with greater safety knowledge are more likely to engage in safer practices.

Safety Attitude (X2): The coefficient (B) for safety attitude is 0.060, with a standard error of 0.108. The standardized coefficient (Beta) is 0.092, with a t-value of 0.552, which is not statistically significant ($p = 0.586$). This suggests that safety attitude does not have a significant influence on safety behavior in this model.

The overall model explains **27% of the variance in safety behavior** ($R^2 = 0.270$), with an **adjusted R^2 of 0.216**, indicating a moderate fit. The **standard error of the estimate (SEE)** is 0.16277, reflecting the accuracy of the predictions. The model's **F-value is 5.002**, which is statistically significant, confirming that the overall regression model is a good fit for the data ($p < 0.05$).

In conclusion, while safety knowledge significantly predicts safety behavior, safety attitude does not contribute significantly to the model. The findings underscore the importance of enhancing safety knowledge as a key factor in promoting safe practices in the workplace.

Overall, the analysis shows that safety knowledge is a significant predictor of safety behavior, while safety attitude is not.

Regression Equation: $\hat{Y} = 0.297Z_{X1}$

Where:

$\hat{Y}$ is the standardized predicted safety behavior,

Z_{X1} is the standardized score for safety knowledge,

0.297 represents the standardized regression coefficient for safety knowledge.

Discussion.

The regression analysis reveals a significant positive relationship between safety knowledge and safety behavior in the workplace. Specifically, the coefficient of 0.297 indicates that an increase in safety knowledge leads to a corresponding improvement in safety behavior. This relationship is statistically significant, with a p-value of 0.006. The constant value of 3.212 suggests a baseline level of safety behavior that exists even in the absence of explicit safety knowledge, likely due to inherent safety practices or regulatory requirements.

Implications for Practice:

Enhancing Safety Training Programs: The significant impact of safety knowledge on safety behavior highlights the necessity for robust safety training programs. Comprehensive training programs that cover emergency response, safe work practices, and proper equipment use are essential for equipping employees with the knowledge to work safely. This finding is consistent with the work of Clarke (2016), who found that well-structured training programs lead to significant improvements in safety behavior across various industries. However, in contrast, a study by Xia et al. (2019) emphasized that training alone might not always result in long-term behavioral change unless it is paired with continuous reinforcement and real-world application. The possible reason for this discrepancy could be that while training provides foundational knowledge, consistent reinforcement and practical application are necessary to cement safety behaviors in daily work routines.

Continuous Education and Refreshers: As workplace safety protocols and technologies evolve, continuous education and regular refresher courses are critical to maintaining high levels of safety knowledge. Studies such as Mullen et al. (2020) support the idea that continuous education significantly enhances employee competence in responding to new safety challenges. Similarly, Pek et al. (2017) found that regular safety refreshers are crucial in preventing knowledge decay over time. However, this view is not universally held; Liu et al. (2020) argued that refresher courses can lose effectiveness if not properly tailored to the specific risks and context of the workplace. The divergence may stem from differences in course design and relevance to the specific job tasks employees face.

Integration with Safety Management Systems: Integrating safety knowledge within the organization's safety management system is vital. This includes regular assessments, feedback mechanisms, and fostering a culture of continuous learning. This approach aligns with the findings of Wu et al. (2021), who argue that integrating training into the broader safety management framework ensures consistent application and improvement in safety practices. On the other hand, a study by Flatau-Harrison et al. (2020) suggested that without leadership buy-in and ongoing support, even the best safety management systems can fail to influence

behavior effectively. The difference between these studies might be explained by varying levels of leadership engagement and the strength of organizational culture in supporting safety.

Addressing Other Influential Factors: While safety knowledge is crucial, with an R^2 value of 0.270, other factors also significantly influence safety behavior. This is consistent with findings by Khan & Ilyas (2018), who highlighted that factor such as organizational culture, leadership commitment, and safety attitudes play a critical role in shaping safety behavior. Similarly, Cooper (2009) emphasizes that a holistic approach to safety that includes environmental conditions and psychological safety is essential for minimizing workplace accidents. In contrast, Fernández-Muñiz et al. (2019) found that in some cases, focusing too heavily on safety knowledge without addressing other factors could lead to diminishing returns in terms of behavior change. The difference in these findings could be attributed to varying industrial contexts and the relative importance of cultural versus knowledge-based interventions in different settings.

Conclusion

This research aimed to investigate the factors influencing safety behavior among production employees in a manufacturing company located in Gateway City Industrial Estate, Chachoengsao Province. The focus was on understanding how safety knowledge and safety attitude impact safety behavior in the workplace.

Key Findings:

Significant Impact of Safety Knowledge: The regression analysis indicates that safety knowledge significantly influences safety behavior, with a positive coefficient of 0.297. This means that employees with higher levels of safety knowledge are more likely to engage in better safety practices. The relationship is statistically significant ($p = 0.006$), highlighting the critical role of comprehensive safety training programs.

This finding is consistent with a study by Clarke & Taylor (2018), which demonstrated that employees who receive extensive safety training tend to exhibit improved safety behavior in the workplace. Clarke emphasized that knowledge acquisition, particularly through structured training, enhances workers' ability to recognize and mitigate risks. Similarly, Wu et al. (2021) found that integrating safety knowledge into daily operations is key to reducing workplace accidents.

However, a contrasting study by Mullen et al. (2024) suggests that while safety knowledge is important, it does not always directly translate into improved safety behavior. They argue that without continuous reinforcement and real-world application of safety

training, employees may fail to consistently apply their knowledge. The potential reason behind these differing results could be that the practical application of safety knowledge depends heavily on organizational culture and the level of managerial support in reinforcing safety practices.

Baseline Safety Behavior: The intercept value of 3.212 in the regression analysis suggests that a baseline level of safety behavior exists, even in the absence of explicit safety knowledge. This implies that certain inherent safety practices, organizational culture, or regulatory standards contribute to a minimum level of safety behavior among employees.
This finding is consistent with a study by Mearns and Yule (2009), which found that organizational culture plays a crucial role in fostering a baseline of safety practices, regardless of individual knowledge. They argue that in organizations with strong safety cultures, employees tend to internalize safety behaviors as part of their routine work practices. Similarly, Fernández-Muñiz et al. (2022) found that regulatory compliance and safety management systems ensure that a certain level of safety behavior is maintained across industries, providing a safeguard against negligence.

However, not all studies agree with this notion. For example, Khan, et al. (2018) found that in some industries, the baseline level of safety behavior may be weak without continuous training and leadership reinforcement. Khan, et al. argued that without strong leadership commitment and regular oversight, baseline safety behavior might degrade over time, even in organizations with established safety standards. The possible reason behind these differing results may lie in the variability of organizational cultures and how strictly regulatory standards are enforced across different sectors.

Limited Influence of Safety Attitude: Safety attitude did not show a significant impact on safety behavior in this study. While there was a weak positive correlation between safety attitude and safety behavior, it was not statistically significant. This finding suggests that factors other than attitude might play a more crucial role in determining safety behavior (Antonsen, 2009).

Practical Implications:

Investment in Safety Training: Organizations should prioritize safety training to enhance employees' knowledge about safety protocols and practices. Effective training programs that cover emergency response, safe equipment use, and other critical safety topics can lead to significant improvements in workplace safety behavior (Hale & Hovden, 1998).

Continuous Learning: To maintain high safety standards, organizations should implement ongoing education and refresher courses. These initiatives ensure that employees remain updated on the latest safety procedures and technologies (Parker, et al. 2006).

Comprehensive Safety Management: Integrating safety knowledge into a broader safety management system can help sustain safe behaviors. Regular assessments, feedback, and a culture of continuous improvement are essential components of an effective safety management strategy (Cooper, 2000).

Addressing Multiple Factors: While safety knowledge is crucial, organizations should also consider other factors influencing safety behavior, such as organizational culture, leadership commitment, and environmental conditions. A holistic approach to safety management can create a safer and more effective workplace (Weihrich & Koontz, 1993).

In conclusion, this research highlights the critical role of safety knowledge in promoting safe behavior among employees in the manufacturing sector. By prioritizing safety education and integrating it into comprehensive safety management systems, organizations can enhance workplace safety and reduce the incidence of accidents. Future research should continue to explore the multifaceted nature of safety behavior to develop more effective safety interventions.

Limitations

The model explains 27% of the variance in safety behavior, indicating that other variables play a role. Future research should explore additional factors such as safety attitudes, organizational culture, and environmental conditions to develop a more comprehensive understanding of safety behavior.

Sample Size and Generalizability: The study's sample size and specific industry context might limit the generalizability of the findings. Future research should involve larger and more diverse samples to validate and extend the findings across different contexts and industries.

Longitudinal Studies: Longitudinal studies could provide deeper insights into how safety knowledge impacts safety behavior over time. Such studies could also assess the long-term effectiveness of training programs and identify factors that sustain improvements in safety behavior.

Future research

Broader Range of Influences: Future studies should explore a wider range of factors that impact safety behavior, including safety attitudes, organizational culture, and leadership styles. This will provide a more comprehensive understanding of what drives safety behavior in the workplace.

Longitudinal Studies: Conducting longitudinal research can help assess the long-term effects of safety training programs and identify persistent factors that influence safety behavior over time.

Diverse Industry Contexts: Replicating the study across different industries and with larger sample sizes will enhance the generalizability of the findings. Comparative studies can also identify industry-specific factors that affect safety behavior.

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