

The Influence of Safety Climate and Safety Leadership on Safety Behavior of Production Employees at PT. CF, Serang Regency

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ABSTRACT

In the industrial world, especially in fabrication industries, problems related to work and conditions triggering hazards and risks of workplace accidents can arise. Workplace accidents can be caused by two main factors, namely unsafe acts and unsafe conditions. Based on the preliminary study conducted by researchers on 15 production employees at PT. CF in Serang Regency, the results showed that 66.7% of employees have poor safety behavior. This study aims to determine the influence of safety climate and safety leadership on safety behavior among production employees at PT. CF in Serang Regency. The method used in this study is descriptive and associative methods with a quantitative research approach. The population of this study is all employees in the production department at PT. CF. The total number of production department employees is known to be 203 people. The sample size to be used in this study is 134.7 rounded to 135 employees in the production department at PT. CF. This study uses data analysis method with smart PLS software version 3.0 Partial Least Square (PLS) test. The results of the study show that there is an influence of safety climate on safety behavior among production employees at PT. CF in Serang Regency, as seen from the p-value of 0.002. There is an influence of safety behavior on safety behavior among production employees at PT. CF in Serang Regency, as seen from the p-value of 0.000.

Keywords : Safety Climate; Safety Leadership; Safety Behavior

1. Introduction

According to the International Labour Organization (ILO) in 2018, the number of workers dying due to workplace accidents and work-related illnesses reaches 2.78 million annually. 86.3% of deaths are caused by work-related illnesses, while over 13.7% are caused by workplace accidents. More than a thousand times non-fatal workplace accidents occur each year compared to fatal accidents (ILO, 2018). Based on data from BPJS Ketenagakerjaan (2019), there was an increase in the number of workplace accidents from 2017 to 2018. In 2017, there were 123,041 accident cases, while in 2018 there were a total of 173,105 accident cases.

In the industrial world, particularly in fabrication industries, problems related to work and conditions that trigger hazards and risks of workplace accidents can arise. Workplace accidents can be caused by two main factors: unsafe acts and unsafe conditions. Unsafe acts refer to any human behavior that increases risks and dangers to the individual, others, and the surrounding environment. Unsafe conditions, on the other hand, refer to conditions in the work environment that have the potential to increase hazards and risks of workplace accidents for workers (Patricia dkk., 2014). According to a study conducted by Heinrich (1980), it is known that 88% of workplace accidents are caused by unsafe acts, 10% by unsafe conditions, and 2% by unavoidable factors (Winarsunu, 2008).

Neal dkk., (2000) stated that workers' safety behavior in a company is influenced by many factors, one of which is safety organization or the organizational climate within which there is safety climate. Safety behavior involves the operation and actualization of individual or

group behaviors in environmental safety situations and conditions (Syahrial, 2017). Safety behavior is divided into two aspects: safety compliance and safety participation. Additionally, there are two factors that influence safety behavior: internal factors and external factors such as safety climate and organizational factors (Neal & Griffin, 2000).

A large number of studies have revealed that safety climate has a positive correlation with safety behavior (Neal & Griffin, 2006). Safety climate is the shared perception of a work group regarding management, policies, procedures, and practices related to the safety of the work group in the workplace (Kines dkk., 2011). Safety climate is the perception of workers regarding the conditions of the work safety climate, which is an indicator of safety culture in the organization experienced by workers (Flin dkk., 2006). The results of the study by Xue, Fan, dan Xie (2020) showed that in the petrochemical industry, senior management safety leadership has a positive impact on safety behavior, and safety climate plays a mediating role showed that if safety climate and perceived supervisor safety are low, then the company's safety performance will also be low, while high levels of psychological strain can negatively impact the safety performance of the company.

Furthermore, another factor influencing safety behavior is safety leadership. Several other studies have also shown that leadership factors that lead to safety management in the workplace are important factors in achieving good safety performance and forming safety values. Wu et al. (2016) who conducted research on a construction project, found that safety leadership affects the relationship between the owner and supervisor of subcontractors on the construction project, which has a positive effect on managerial, policy, and safety values in the construction area. Fernández, et al. (2017) in their research on several process industry organizations in Spain found that safety leadership has a positive effect on environmental conditions and hazard control in the workplace. Meanwhile, Skeepers dan Mbohwa (2015) in their research on 8 construction industries in South Africa found a positive influence between safety leadership and safety performance. Agustina, Chahyadhi, dan Ardyanto (2019) showed that there is a significant relationship between safety leadership factors and safety performance among workers in the Sidoarjo Animal Feed Industry.

Based on preliminary study results with the safety section head of PT. CF, it is known that workers' safety behavior is often found not in line with expectations. This is evidenced by findings of unsafe behaviors performed by workers. PT. CF has a Occupational Safety and Health (OSH) program, one of which is conducting toolbox meetings every morning and before starting work in each unit to continually remind of the hazards and risks that may arise while working. However, there are still workers who experience workplace accidents. This can happen because according to safety inspectors at PT. CF, workers who do not comply with applicable standard operating procedures (SOPs) are often found, such as working at heights without using full body harnesses, not using safety goggles during welding activities, and climbing scaffolding that has not been tagged green by safety inspectors. This is caused by various reasons, such as workers being lazy or forgetful to use Personal Protective Equipment (PPE), and the reason that workers are chasing project targets, so they become rushed and tend to neglect following the SOP steps completely. Additionally, preliminary study results on five workers at PT. CF, leaders are less observant and not firm with workers who do not comply with standard operating procedures (SOPs).

Based on the preliminary study conducted by the researcher on 15 production employees at PT. CF in Serang Regency, the results showed that 66.7% of employees have poor safety behavior. Overall, the preliminary study results on employee safety behavior are still relatively low. Additionally, preliminary study results on five workers at PT. CF showed that the management lacks supervision and does not take firm action against workers who do not comply with standard operating procedures (SOPs).

Given the novelty of research information during the Covid-19 pandemic, there are several elements carried out by companies related to the implementation of programs to

reduce workplace accidents and behavior-based safety programs, including implementing Covid-19 prevention instructions that impact workers' working behavior. The researcher will also provide new information where the researcher is the first person to do so in the company by providing positive impacts and recommendations acceptable to the company.

Based on this background, further research is needed on the relationship between safety climate and safety leadership on Safety Behavior among production employees at PT. CF, considering that there are still workers engaging in unsafe behavior which can potentially pose hazards and risks in the workplace. With the existing issues in the field, I, as a researcher and also as an HSE employee from PT. CF, am interested in conducting further research with the title "The Influence of Safety Climate and Safety Leadership on Safety Behavior among Production Employees at PT. CF in Serang Regency".

2. Literature Review

Safety Behavior

Safety Behavior is the actions of one or several employees that can minimize the likelihood of accidents (Heinrich dkk., 1980). Meanwhile, according to Bird dan Germain (1990) dalam Heryati dkk., (2019) as cited in Heryati et al. (2019), Safety Behavior refers to behaviors that cannot lead to accidents.

Safety Climate

The concept of safety climate was first introduced in 1980 by Zohar to describe employees' perceptions of management's approach to workplace safety and the extent to which workplace safety contributes to the production process in general. According to A Neal dkk., (2000), safety climate is a specific manifestation of organizational climate that describes employees' perceptions of safety values within the organization where they work.

Safety leadership

Safety leadership is a process that describes an expected condition, prepares teams for success, and engages in discretionary efforts that promote safety values. Safety leadership is widely recognized as a critical element in the success of a business. Ineffective safety leadership can hinder a company's ability to achieve its business goals (D. Cooper, 2015). yang Ineffective safety leadership stems from a lack of understanding of the company's safety management systems and related policies. This leads to uncertainty regarding leadership responsibilities and accountability for safety, as well as the authority to make improvements (Cooper dan Finley 2013).

3. Research Methodology

The method employed in this study is a descriptive and associative method with a quantitative research approach. The population of this study comprises all employees in the production department at PT. CF. The total number of production department employees is known to be 203 individuals. The sample size to be used in this study is 134.7, rounded up to 135 employees in the production department at PT. CF.

The research is conducted at PT. CF located on Jl. Raya Bojonegara-Salira, Ds. Argawana, Kec. Pulo Ampel, Kab. Serang, Banten. The objective of this research is to analyze the improvement of workers' knowledge regarding good safety climate and safety leadership, as well as the enhancement of Safety Behavior or better safety behavior while working. This research was conducted from April 2022 until completion.

The types of data used in this research are primary data and secondary data. The following data are collected and utilized in the research:

1. Primary data in this research are obtained directly from the observation results of Safety Behavior, safety leadership, and safety climate questionnaires, as well as individual characteristics of employees in the production department at PT. CF.

2. Secondary data are indirectly obtained by the researcher from the research site. Secondary data include the general description of PT. CF and the number of workers.

In this research, data analysis method using smart PLS software version 3.0 Partial Least Square (PLS) test is employed. Outer Model analysis or measurement model in Partial Least Squares test is conducted to test internal validity and reliability. Using outer model analysis will specify the relationships between latent variables and their indicators, or it can be defined that the outer model explains how each indicator relates to its latent variable.

4. Results and Discussion

Safety Climate

Based on the data processing results from distributing questionnaires to production employees at PT. CF, it was found that the safety climate at PT. CF, according to these employees, was assessed by comparing the ideal scores obtained from the questionnaire data processing with the ideal score itself. The total score for the safety climate at PT. CF is 3,109. However, based on interviews with one of the workers at PT. CF, the company's safety climate is considered poor. This is due to leaders consistently neglecting the safety aspects of workers, which leads to a poor safety climate among workers. One worker imitates another worker who does not practice safety while working. This has the potential to influence workers who initially adhere to regulations and practice safety to stop doing so, making non-compliance a norm.

From the data processing results, the total score obtained is 3,109. This number is then placed on a continuum line determined by the following method:

$$\begin{aligned} \text{Maximum Value} &: 4 (\text{Score Value}) \times 7 (\text{Items}) \times 135 (\text{Respondents}) = 3.780 \\ \text{Minimum Value} &: 1 (\text{Score Value}) \times 7 (\text{Items}) \times 135 (\text{Respondents}) = 945 \\ \text{Interval Range} &: (\text{Maximum Value} - \text{Minimum Value}) : 4 \\ &: (3.780 - 945) : 4 \\ &: 708,75 \end{aligned}$$

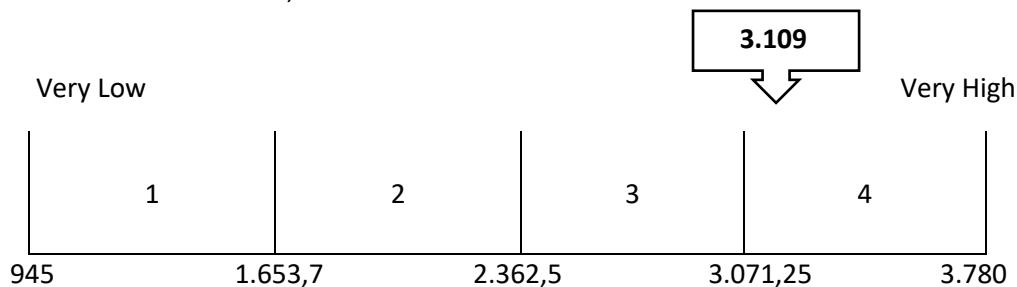


Figure 1. Continuum Line for Safety Climate Variable

Ideally, the expected score for the responses of production employees at PT. CF for questions 1 through 7 is 3,780. Based on the above calculations, the obtained score is 3,109, which is 82.24% of the ideal score of 3,780. Therefore, the safety climate at PT. CF falls into the Very High category. This indicates that the production employees at PT. CF believe that the safety climate of a company influences safety behavior.

Safety leadership

Based on the data processing results from distributing questionnaires to production employees at PT. CF, it was found that the safety leadership at PT. CF, according to these employees, was assessed by comparing the ideal scores obtained from the questionnaire data processing with the ideal score itself. The total score for safety leadership at PT. CF is 3,053. From the data processing results, the total score obtained is 3,053. This number is then placed on a continuum line determined by the following method:

$$\begin{aligned} \text{Maximum Value} &: 4 (\text{Score Value}) \times 7 (\text{Items}) \times 135 (\text{Respondents}) = 3.780 \\ \text{Minimum Value} &: 1 (\text{Score Value}) \times 7 (\text{Items}) \times 135 (\text{Respondents}) = 945 \end{aligned}$$

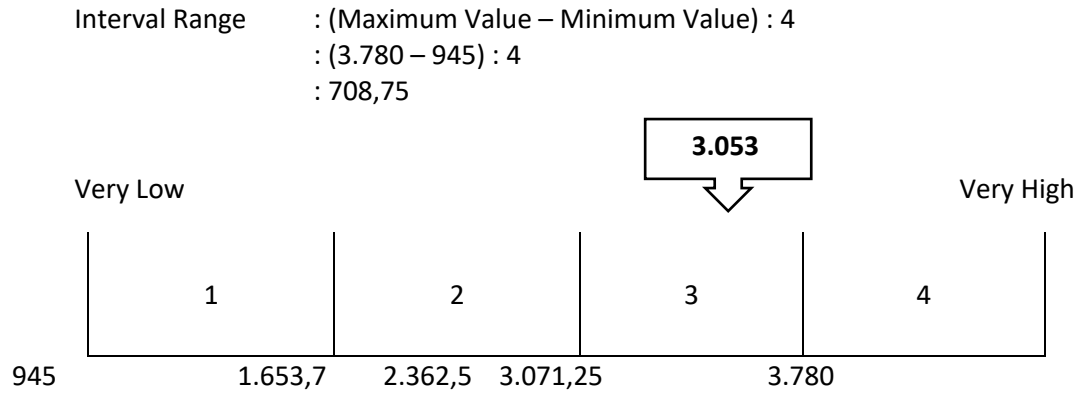


Figure 2. Continuum Line for Safety Leadership Variable

Ideally, the expected score for the responses of production employees at PT. CF for questions 1 through 7 is 3,053. Based on the above calculations, the obtained score is 3,053, or 80.76% of the ideal score of 3,780. Therefore, the safety leadership at PT. CF falls into the High category. This indicates that production employees at PT. CF believe that the company's safety leadership influences safety behavior.

Safety Behavior

Based on the data processing results from distributing questionnaires to production employees at PT. CF, it was found that the safety behavior at PT. CF, according to these employees, was assessed by comparing the ideal scores obtained from the questionnaire data processing with the ideal score itself. The total score for safety behavior at PT. CF is 2,827. Field observation results indicate that safety behavior is considered poor by the production employees at PT. CF because the leaders lack safety leadership, creating a poor safety climate, which in turn leads to poor safety behavior among workers. From the data processing results, the total score obtained is 2,827. This number is then placed on a continuum line determined by the following method:

Maximum Value : 4 (Score Value) x 6 (Items) x 135 (Respondents) = 3.240
 Minimum Value : 1 (Score Value) x 6 (Items) x 135 (Respondents) = 810
 Interval Range : (Maximum Value – Minimum Value) : 4
 : (3.240 – 810) : 4
 : 607,5

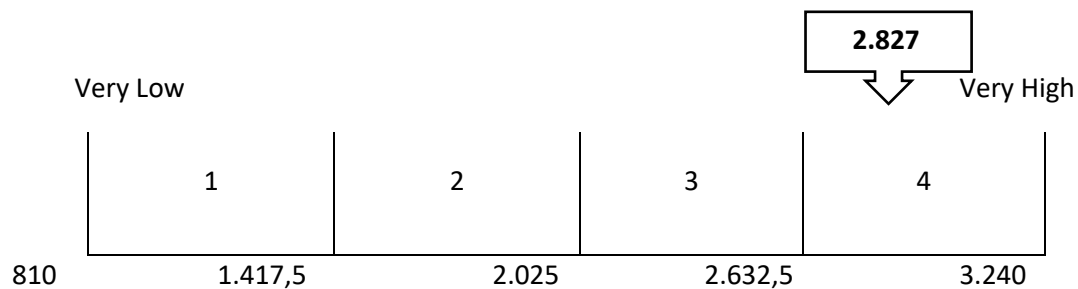


Figure 3. Continuum Line for Safety Behavior Variable

Ideally, the expected score for the responses of production employees at PT. CF for questions 1 through 6 is 3,240. Based on the above calculations, the obtained score is 2,827, or 87.25% of the ideal score of 3,240. Therefore, the safety behavior at PT. CF falls into the Very High category. The analysis of Safety Behavior aims to obtain answers regarding safety compliance and safety participation.

Hypothesis Testing

Hypothesis testing is represented by a single arrow on the diagram and aligns with the given hypothesis. The direct effects in this research model are as follows:

Table 1. Hypothesis Testing

	<i>Original Sample (O)</i>	<i>T Statistics (O/STDEV)</i>	<i>P Values</i>
<i>Safety Climate -> Safety Behaviour</i>	0.174	3.122	0.002
<i>Safety leadership -> Safety Behaviour</i>	0.758	25.502	0.000

Source: Data Processing Results, 2022

Based on Table 1, the results of the influence of independent variables on the dependent variable are as follows:

1. Safety Climate significantly influences Safety Behavior, as indicated by a p-value of $0.002 < 0.05$. The direct influence of Safety Climate on Safety Behavior is 0.174, meaning that if Safety Climate increases by one unit, Safety Behavior can increase by 17.4%. This influence is positive.
2. Safety Leadership significantly influences Safety Behavior, as indicated by a p-value of $0.000 < 0.05$. The direct influence of Safety Leadership on Safety Behavior is 0.758, meaning that if Safety Leadership increases by one unit, Safety Behavior can increase by 75.8%. This influence is positive.

Discussion

Overview of Safety Climate, Safety Leadership, and Safety Behavior Among Production Employees at PT. CF in Serang Regency.

The safety climate at PT. CF falls into the Very High category. This indicates that the production employees at PT. CF believe that the company's safety climate influences safety behavior. The highest score is on the statement "The company provides me with regular refreshment training according to the risks I face" with a score of 457 and a percentage of 14.70%, while the lowest score is on the statement "I am not allowed to continue working if my work area is unsafe for me" with a score of 431 and a percentage of 13.86%. Field observations indicate that the weakness in the safety climate at PT. CF is that management does not fully prioritize safety over production and still tolerates workers engaging in dangerous actions during busy schedules.

The safety leadership at PT. CF falls into the High category. This indicates that the production employees at PT. CF believe that the company's safety leadership influences safety behavior. The highest score is on the statement "The management of the company where I work always meets safety needs if there are suggestions from employees" with a score of 467 and a percentage of 15.30%, while the lowest score is on the statement "The management of the company where I work always communicates the importance of safety values" with a score of 422 and a percentage of 13.82%. Field observations at PT. CF reveal that a shortcoming in the company's safety leadership is that supervisors do not praise subordinates who exhibit safe working behaviors.

Safety behavior at PT. CF falls into the Very High category. The lowest score was on the statement "I make extra efforts to improve safety in the workplace," with a score of 465 and a percentage of 16.45%. Field observations indicate that the Safety Behavior among production employees at PT. CF includes not using all the necessary safety equipment to perform tasks and not following all the correct safety procedures.

Influence of Safety Climate on Safety Behavior Among Production Employees at PT. CF in Serang Regency

Safety climate significantly influences Safety Behavior, as indicated by a p-value of $0.002 < 0.05$. The direct influence of Safety Climate on Safety Behavior is 0.174, meaning that if Safety Climate increases by one unit, Safety Behavior can increase by 17.4%. This influence is positive.

Achieving a good perception of Safety Climate can occur because PT. CF has a strong commitment to safety, demonstrated by the implementation and adherence to ISO 45001:2018 and Government Regulation No. 50 of 2012. This aligns with the theory that a good safety climate can be created when management shows proactive and tangible safety leadership regularly (Stewart, 2001 in Michael dkk., 2005). Management can demonstrate its safety commitment by building and promoting a safe workplace and creating supportive working relationships to address safety issues (Zou & Sunindijo, 2015). Good and continually improving management commitment to safety can benefit both workers and the company by increasing production, process, and service quality, as well as boosting morale and enhancing the company's image (OSHA, 2016).

As part of an occupational health and safety program, it provides a platform for communication between workers and management. In this activity, open communication, especially regarding safety issues, can be established. This aligns with the theory presented by Clarke dkk., (2016) that coordination, cooperation, and communication processes at the group level, both between management and employees and among coworkers, are crucial in building a safety climate. Social interaction within the organization can affect the safety climate. The first effect is the building of mutual agreement and understanding through communication among group members or coworkers. The second effect is the frequent communication about safety levels with coworkers, which can influence perceptions of safety (safety climate level) within the work group (Clarke dkk., 2016).

Devis and Newstrom, as cited in Fatiqa (2019) define commitment as part of an employee's loyalty to the company by participating actively in the workplace. Commitment usually grows along with the increase in duration and work experience of employees. Employees are also more likely to voluntarily participate in safety if management and supervisors highly value and care about their safety and well-being (Gouldner in Lyu dkk., 2018). However, this is not the only factor determining work motivation, as regulations and mutual care among coworkers also play a role (Kines dkk., 2011).

Influence of Safety Leadership on Safety Behavior Among Production Employees at PT. CF in Serang Regency

Safety Leadership significantly influences Safety Behavior, as indicated by a p-value of $0.000 < 0.05$. The direct influence of Safety Leadership on Safety Behavior is 0.758, meaning that if Safety Leadership increases by one unit, Safety Behavior can increase by 75.8%. This influence is positive.

One way for management to enhance Safety Leadership is by empowering and trusting employees regarding the safety system. Based on interviews with management, it is known that one of the efforts made to empower employees is to encourage their involvement in safety issues and to accept suggestions from employees, offering rewards to those who can and are willing to report safety-related findings or successfully provide solutions to safety issues they identify. From interviews with employees, they believe that accident investigations in the company are conducted fairly, seeking the causes of accidents and listening attentively to everyone involved. Blaming employees only hinders the learning process (Jeffcott dkk., 2006).

The failure of management to act on unsafe employee actions can lead to the perception that such actions are acceptable (Weiner dkk., 2008). This is corroborated by research from Gyekye & Haybatollahi (2014) which reveals that poor perceptions of safety

fairness can arise when management's encouragement of employees does not meet their expectations, resulting in lower safety performance. Therefore, safety treatment and procedures in handling accidents must be clearly and fairly implemented.

The commitment to safety among production employees at PT. CF is demonstrated by the implementation of the 5S policy as an effort to maintain workplace cleanliness. Devis and Newstrom, as cited in Fatiqa (2019) define commitment as part of an employee's loyalty to the company by participating actively in the workplace. Commitment usually grows along with the increase in duration and work experience of employees. Employees are also more likely to voluntarily participate in safety if management and supervisors highly value and care about their safety and well-being (Gouldner in Lyu dkk., 2018). However, this is not the only factor determining work motivation; regulations and mutual care among coworkers also play a role (Kines dkk., 2011).

5. Conclusion

Based on the research conducted on the influence of safety climate and safety leadership on safety behavior among production employees at PT. CF in Serang Regency, several conclusions can be drawn:

1. The safety climate at PT. CF is categorized as Very High. This indicates that production employees at PT. CF believe that the company's safety climate significantly influences safety behavior. Similarly, the safety leadership at PT. CF is also categorized as Very High, indicating that employees believe that the company's safety leadership significantly influences safety behavior. The safety behavior at PT. CF is categorized as Very High, demonstrating that the production employees at PT. CF exhibit good safety behavior.
2. There is a significant influence of the safety climate on safety behavior among production employees at PT. CF in Serang Regency, as evidenced by a p-value of 0.002.
3. There is a significant influence of safety leadership on safety behavior among production employees at PT. CF in Serang Regency, as evidenced by a p-value of 0.000.

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