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Integration of Safety Knowledge and Workplace Safety Climate in Shaping Safety Behavior to Improve Safety Performance

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Abstract

This study aims to examine the influence of safety knowledge and safety climate on safety performance with safety behavior as a mediating variable in nurses at Ananda General Hospital, Jatiwinangun General Hospital, and Wijayakusuma Hospital. This study reviews the increasing concern for occupational safety in the healthcare sector, where nurses have high levels of exposure to biological risks, procedural errors, and intense workloads that can impact both workforce safety and patient safety. A total of 203 nurses participated as respondents, and data were collected using a standardized survey instrument. The analysis was conducted using Structural Equation Modeling (SEM) to evaluate the direct and indirect relationships between variables. The results showed that safety knowledge had no effect on safety performance, safety climate had an effect on safety performance, safety knowledge had an effect on safety behavior, safety climate had an effect on safety behavior, safety behavior had an effect on safety performance, safety behavior mediated the effect of safety knowledge on safety performance, and safety behavior mediated safety climate on safety performance. This conclusion indicates that understanding safety procedures and working in an environment with a good safety climate tends to increase safety behavior. The influence of both is strengthened through safety behavior as a mediator, which reflects the effectiveness of implementing safety practices in hospitals.

Keywords: Safety Knowledge, Workplace Safety Climate, Safety Performance, Safety Behavior

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INTRODUCTION

Hospitals are health service centers that have an important role in maintaining and improving health (Ahmed et al., 2025). According to the World Health Organization (WHO), nurses have a higher level of exposure to occupational hazards than other health workers, ranging from exposure to biological agents, injuries from sharp objects, high work pressure, to the risk of fatigue which impacts worker safety and patient safety (Doda & Pangaribuan, 2022). Globally, healthcare workers have reportedly experienced workplace safety incidents, demonstrating that safety culture and behavior remain major challenges in healthcare facilities. This phenomenon confirms that efforts to improve safety depend not only on technological devices and procedures, but also on individual capacity and a supportive work environment.

High exposure to risks can affect nurse safety performance (Rafi'ah et al., 2022). In addition, many cases of non-compliance with safety procedures were found, such as inconsistent use of personal protective equipment. Based on research results at Sembiring

Regional Hospital in 2023, it was found that frequent incidents included needlestick injuries, cuts from sharp instruments, being hit by falling materials, slipping, and being exposed to spilled liquids. Medical personnel who have just started working (less than one year) are recorded as experiencing more incidents than those who have more than one year of work experience (Irwandi & Manik, 2023).

In Purwokerto, there are several hospitals, namely Ananda Hospital, Jatiwinangun Hospital and Wijayakusuma Hospital, which have shown their concern for safety performance. For example, Ananda Hospital in Purwokerto has participated in high-quality early warning system training as an effort to improve the quality of safety responses (Cardiopulmonary et al., 2021). However, to date, there is no data regarding the consistency of the implementation of these safety practices, including information regarding work incidents or the level of safety performance in hospitals such as the Jatiwinangun Purwokerto Women's and Children's Hospital. This condition emphasizes the need for a more in-depth evaluation to determine the extent to which safety standards have been implemented effectively, both in work environment management and health services, so that the hospital's safety performance can be assessed as a whole.

Safety performance is an important element in hospital service management because it plays a role in preventing serious injuries, occupational infections, and damage to medical facilities. This performance reflects the extent to which the safety system within the hospital environment is able to operate effectively through a low number of incidents or occupational injuries (Siswanto & Amin, 2025)**.** Achievement of safety performance is influenced by the behavior of health workers, organizational structure, implementation of safety programs, and compliance with applicable occupational safety guidelines and regulations (ismail, 2020 dan Putra et al., 2022). In addition, safety performance also demonstrates the hospital's commitment to maintaining the welfare of all medical and non-medical personnel involved in services (Hananto et al., 2023).

Safety knowledge includes understanding the use of safety equipment, understanding the types of hazards, and understanding how to handle emergency situations (Rusdiana, 2025). Aspects of safety knowledge include adequate training, comments on safety performance, understanding work mechanisms, and general knowledge of the work environment (Rusdiana, 2025). This is supported by research conducted (Kamilah et al., 2021; Pratiwi et al., 2024; Siswanto & Amin, 2025) showing that the safety knowledge variable influences safety performance. Meanwhile, research conducted by (Dhani et al., 2022) shows that safety knowledge does not affect safety performance.

Workplace safety climate describes nurses' views on occupational safety rules, practices, and efforts that are considered to influence the safety and well-being of nurses in the work environment (Rusdiana, 2025). A positive workplace safety climate is also reflected in clear policies, management commitment, adequate safety facilities, and a culture of incident reporting, which overall encourage safe work behavior and increase protection for both patients and nurses. This is supported by research conducted (Lestari et al., 2023; Puspitasari et al., 2024 dan Rifqi et al., 2022) which shows that the workplace safety climate variable influences Safety Performance. Meanwhile, research conducted by (setiono, 2024; Suraya et al., 2022) shows that workplace safety climate does not affect safety performance.

Safety behavior is all actions, attitudes, and habits of individuals that aim to maintain the safety of themselves and others while working to prevent accidents or dangers (Afriandika et al., 2025). Safety behavior refers to individual behavioral actions that reflect compliance with established safety procedures and standards in the workplace (Bagis, Adawiyah, et al., 2024). This behavior includes steps taken to keep oneself and others safe from potential hazards, in implementing the use of personal protective equipment (PPE), following emergency steps, and reporting safety risks (Panaha et al.,

2021). This is supported by research conducted (Atikasari et al., 2022; Putra et al., 2022 dan Setiadi et al., 2025) showing that safety behavior variables influence Safety Performance. Meanwhile, research conducted by (Ayuni et al., 2022 dan Saputra et al., 2021) shows that safety behavior does not affect safety.

Based on the background and existing research gaps, the researcher intends to review the research conducted by (Putra et al., 2022) entitled "The effect of safety knowledge and workplace safety climate on safety performance with safety behavior as a mediator: A study on operations worker of Pindad. The difference in the object of this research is a hospital in Purwokerto, while previous research was conducted in a company. In addition, this study involved a wider population, so the number of respondents sampled was greater than in previous studies. The importance of this research is that safety knowledge and workplace safety climate play an important role in shaping the safety behavior of health workers. When nurses understand safety procedures and work in an environment with a good safety climate, safe behaviors tend to increase. The influence of both is strengthened through safety behavior as mediation, which reflects the effectiveness of implementing safety practices in hospitals. Thus, this study examines safety knowledge and workplace safety climate on safety performance through safety behavior as mediation in hospitals in Purwokerto.

Literature Review

Social Cognitive Theory

According to Bandura (1986), social cognitive theory emphasizes the idea that most human learning occurs in a social environment. By observing others, humans acquire knowledge, rules, skills, strategies, beliefs, and attitudes. Individuals also look at models or examples to learn the usefulness and appropriateness of behaviors resulting from the modeled behavior, then they act according to their beliefs about their abilities and the expected results of their actions. This theory states that safety knowledge as a personal that increases workers' confidence to carry out safe actions, while workplace safety climate as an environmental factor strengthens motivation and social support. Both factors can influence safety performance through safety behavior as a mediator, because good safety performance provides positive feedback that reinforces consistent safe behavior in the workplace(Bandura, 1977).

According to (Bandura, 1977) Social Cognitive Theory emphasizes that knowledge will not be fully effective without supportive environmental conditions. Workplace safety climate as a representation of environmental factors plays a role in shaping workers' perceptions regarding the extent to which the organization prioritizes safety, provides protective equipment, implements consistent rules, and maintains good communication flows (Afriandika et al., 2025). When the safety climate is perceived as positive, it can increase workers' confidence and motivation to adopt safe behaviors. Thus, the safety knowledge possessed by individuals and positive perceptions of the safety climate interact with each other and create conditions that encourage optimal safety behavior. In this study, SCT theory is used to explain how safety knowledge and workplace safety climate can influence safety behavior, with safety performance as the mediator.

The Influence of Safety Knowledge on Safety Performance

Understanding safety plays a crucial role as the primary foundation for workers to be aware of the risks and procedures that must be followed to maintain safety in the workplace. By having sufficient knowledge, workers are able to identify potential hazards, carry out appropriate preventive measures, and make appropriate decisions when facing dangerous conditions (Najla et al., 2025). This condition has a direct impact on safety performance, because workers who understand safety aspects well tend to be more obedient to the rules and more active in protecting themselves and their colleagues.

Conversely, a lack of knowledge can increase the risk of accidents and errors in the workplace. Therefore, increasing safety knowledge through training and education is a key factor in creating a safe work environment while increasing the effectiveness of overall safety performance.

According to Bandura (1986) Social Cognitive Theory (SCT), afety knowledge improves safety performance because a good understanding of risks and procedures makes workers more confident and able to act safely, so that safety performance becomes more optimal. Research conducted by (Kamilah et al., 2021; Pratiwi et al., 2024; Siswanto & Amin, 2025) shows that safety knowledge influences safety performance. Meanwhile, research conducted by (Dhani et al., 2022) shows that safety knowledge does not affect safety performance .

H1: Safety Knowledge influences Safety Performance

The Influence of Workplace Safety Climate on Safety Performance

According to Lestari et al., (2023) workplace safety climate is a shared perspective among employees regarding the extent to which safety is considered important and effectively implemented by management in the workplace. This term describes how an organization's values, attitudes, and policies are reflected in their efforts to maintain safety in the work environment. Workplace safety climate is formed from the direct experiences of workers in carrying out daily work activities, such as participating in safety training, implementing safe work procedures, using personal protective equipment, and observing management's response to potential hazards and incidents. A work environment that demonstrates a good safety climate is usually reflected in transparent communication, active worker involvement in safety programs, and management commitment to implementing safety measures. Therefore, workplace safety climate is an important benchmark in assessing the quality of safety culture in the workplace and plays a major role in reducing accidents and improving worker health and safety (Bagis & adawiyah, 2025).

According to Bandura (1986) Social Cognitive Theory (SCT), workplace safety climate influences safety performance because support and commitment to safety in the work environment increase workers' self-efficacy and motivation to act safely, so that safety performance improves. Research conducted by (Lestari et al., 2023; Puspitarini et al., 2024 dan Rifqi et al., 2022) ndicates that workplace safety climate influences safety performance. Meanwhile, research conducted by (setiono, 2024; dan Suraya et al., 2022) indicates that workplace safety climate does not influence safety performance.

H2: Workplace Safety Climate influences Safety Performance.

The Influence of Safety Knowledge on Safety Behavior

Safety knowledge is a person's understanding of various aspects related to work safety, including basic principles, operational procedures, and preventive measures against potential risks, injuries, and accidents in the workplace (Maulidy et al., (2023). This understanding includes the ability to identify hazards, use personal protective equipment correctly, apply safe work methods, and know what actions to take in emergency situations. Individuals who have good safety knowledge will be better prepared to face risky conditions and be able to take appropriate action to protect themselves and those around them. In addition, safety knowledge also plays an important role in fostering safe work behavior and creating a work environment that supports productivity and long-term health (Rahmadhan et al., 2021). According to Bandura, (1986) Social Cognitive Theory (SCT), safety knowledge plays a role as a cognitive factor that increases workers' safety behavior in implementing safety procedures. The higher the safety knowledge, the greater the individual's confidence and ability to display appropriate safety behavior. Thus, Social

Cognitive Theory (SCT) explains that safety behavior is formed through the interaction between knowledge, self-confidence, and the work environment.

Research conducted by (Arianto & Feriana, 2021; Rahmadhan et al., 2021; dan Stiawan, 2024) shows that the variable Safety Knowledge influences safety behavior. Meanwhile, research conducted by (Wongta et al., 2024; dan Uikey et al., 2025) shows that Safety Knowledge has no effect on Safety Behavior.

H3: The Influence of Safety Knowledge on Safety Behavior

The Influence of Workplace Safety Climate on Safety Behavior

Workplace safety climate is a reflection of the work environment that demonstrates a company's concern and responsibility for the safety, health, and comfort of its employees (Iqbal et al., 2024). This is realized through the implementation of appropriate policies, effective communication, and the formation of a work culture that is oriented towards accident prevention and risk control. To create a safe working environment, companies need to ensure that every operational process runs in accordance with established safety standards. These steps include providing regular employee training, using personal protective equipment (PPE), identifying and monitoring potential hazards, and providing adequate safety support facilities. An open communication relationship between management and workers is also very important in identifying and resolving problems related to occupational safety. By developing a work culture that prioritizes safety, companies not only maintain the health and safety of employees, but also contribute to improving performance and creating a conducive and sustainable work environment (Abeje & Luo, 2023).

According to Bandura (1986) Social Cognitive Theory (SCT), workplace safety climate, as an environmental factor, influences workers' beliefs and motivation to act safely. When the safety climate is positive and supported by management, workers' safety behavior improves so they are more consistent. Thus, a good safety climate encourages safety behavior through the process of observation and self-regulation. Research conducted by Zhao et al., 2024; Hubert et al., 2025; dan Lee et al., 2024) indicates that workplace safety climate influences safety behavior. Meanwhile, research conducted by (Guo et al., 2025; Pradewa & mahardayani, 2023) indicates that workplace safety climate does not influence safety behavior.

H4: Workplace safety climate influences safety behavior

The Influence of Safety Behavior on Safety Performance

Safety behavior is an action taken by each individual in the workplace that reflects compliance with established safety rules and procedures, as well as active involvement in creating a safe work environment (Bagis, Purnomo, et al., 2024). These actions include the proper use of personal protective equipment, adhering to safe work instructions, reporting potential hazards encountered, and assisting coworkers when faced with risky situations. Safety behavior also reflects workers' awareness of the importance of maintaining safety, not only for themselves but also for others around them (Rahayu et al., 2025). By encouraging these safety behaviors, organizations are able to reduce the risk of accidents, build a more safety-conscious work culture, and improve the productivity and overall well-being of workers. This is related to research that the variables Safety Behavior and Safety Performance have an influence.

According to Bandura (1986) Social Cognitive Theory (SCT), safety behavior influences safety performance because safety behavior reflects the results of self-regulation, motivation, and workers' beliefs to act according to procedures. The more consistently workers display safety behaviors, the better the resulting safety performance, such as reduced accident risk and increased compliance. Research conducted by (Atikasari et al., 2022; Putra et al., 2022; dan Setiadi et al., 2025) shows that safety behavior variables

influence safety performance. Meanwhile, research conducted by (Ayuni et al., 2022 dan Saputra et al., 2021) shows that safety behavior does not influence safety performance.

H5: Safety Behavior influences Safety Performance

Safety Behavior mediates the influence of Safety Knowledge on Safety Performance.

According to Wijaya et al., (2024) Safety Performance is an important indicator in assessing the effectiveness of the work safety system. One of the factors believed to influence it is Safety Knowledge, namely an individual's understanding of procedures, work hazards, and preventive measures. This knowledge is an important foundation in supporting safety in the workplace. However, knowledge does not always directly improve safety performance. To produce real change, this knowledge must be applied in the form of behavior, namely Safety Behavior. Safety behavior includes compliance with rules and active participation in safety activities. ndividuals who have high safety knowledge tend to be more aware of risks and more motivated to behave safely. This behavior ultimately has a direct impact on Safety Performance. Thus, Safety Behavior can act as a mediator, bridging the relationship between Safety Knowledge and Safety Performance.

According to Bandura (1986) Social Cognitive Theory (SCT), safety behavior strengthens the influence of safety knowledge on safety performance because safe behavior is a form of applying safety knowledge. The better the workers' safety knowledge and behavior, the higher the resulting safety performance. Research conducted by (Putra et al., 2022 dan Wijaya et al., 2024) shows that safety behavior strengthens the relationship between safety knowledge and safety performance. Meanwhile, research conducted by (Astuti & Setyorini, 2024) shows that safety behavior weakens the relationship between safety knowledge and safety performance.

H6: Safety behavior strengthens the relationship between safety knowledge and safety performance.

Safety Behavior Mediates the Effect of Workplace Safety Climate on Safety Performance.

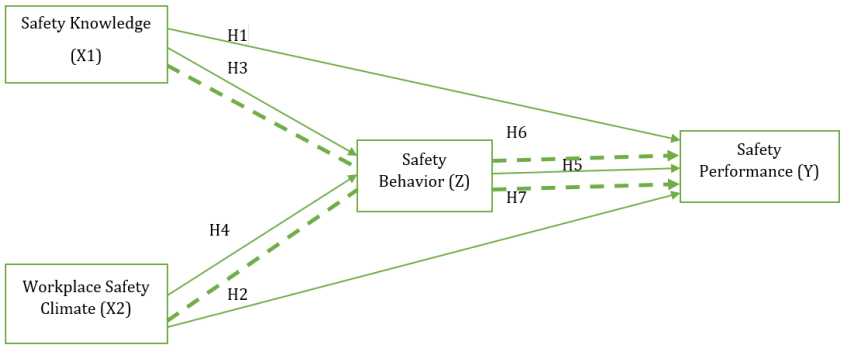
According to Putra et al., (2022) a safe work environment is a crucial aspect in supporting safety performance in the workplace. Workplace Safety Climate describes the collective perception of employees towards the safety policies, procedures and practices implemented by the organization. When employees feel that safety is made a priority by management, they tend to exhibit more positive attitudes toward safe work practices. However, perceptions of a safety climate do not necessarily result in high Safety Performance without actual behavior that supports work safety. In this case, Safety Behavior, which includes proactive actions such as complying with safety procedures and active participation in safety programs, plays an important role as a bridge between perceptions and performance outcomes (Bagis, Adawiyah, et al., 2025). Various previous studies have shown that a positive safety climate can encourage the formation of safety behavior among employees. On the other hand, Safety Behavior also directly contributes to increasing Safety Performance, such as reducing the number of accidents and work incidents. Therefore, it can be assumed that Safety Behavior mediates the relationship between Workplace Safety Climate and Safety Performance.

According to Bandura (1986) Social Cognitive Theory (SCT), safety behavior strengthens the influence of workplace safety climate on safety performance because safe behavior is a direct response to a work environment that supports safety. he more positive the safety climate and the better the workers' safe behavior, the higher the resulting safety performance. Meanwhile, research conducted by (Putra et al., 2022 dan Wijaya et al., 2024) shows that safety behavior strengthens the relationship between safety knowledge and safety performance (Prasetya et al., 2024) shows that safety behavior strengthens the relationship between safety knowledge and safety performance.

H7: Safety behavior can strengthen the relationship between workplace safety climate and safety performance.

Research Framework

Figure 1. Conceptual Model for Analyzing the Influence on Safety Performance



METHOD

This study uses a quantitative method with a replica design that analyzes the influence of safety knowledge and workplace safety climate on safety performance with safety behavior as a mediator in health workers at hospitals in Purwokerto, Ananda Hospital, Jatiwinangun Hospital, and Wijayakusuma Hospital. Quantitative methods are used to measure the relationship between variables. This study aims to re-examine the relationship model of these variables by taking a different sector, namely the Hospital sector. The population in this study were nurses at three hospitals in Purwokerto, consisting of Jatiwinangun General Hospital, Ananda General Hospital, and Wijayakusuma Level III Hospital with a total of 410 nurses.

The sampling technique used in this study was accidental sampling. Accidental sampling is a sampling method carried out by selecting individuals who happen to be there or who happen to be met by the researcher, the respondents taken must match the required characteristics (Setiawan & Widajanto, 2024). Data collection in this study was done by distributing questionnaires compiled based on a 5-factor Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The research instruments were taken from sources that had been tested for validity and reliability in previous research.

The measurement of variables uses different references, for the safety knowledge variable using 6 items from (Basahel, 2021). The workplace safety climate variable uses 12 items from (Panuwatwanich, 2016). Meanwhile, the safety performance variable is measured using 7 items from (hinze & godfrey, 2003). Meanwhile, the mediating variable safety behavior was measured with 6 items from (Lu et al., 2010). This method was chosen because it can analyze complex structural models involving mediating variables simultaneously, and is appropriate for predicting relationships between variables and testing theoretical models based on empirical data (hair et al, 2021).

RESULT AND DISCUSSION

In this study, partial least square (PLS) was used to test the proposed hypothesis. This PLS aims to minimize variance in (hair et al, 2021). From the results of data collection through questionnaires that have been distributed to respondents, 203 respondents were collected from 3 different hospitals, with the following details:

Table 1. Respondent Demographics

Identity	information	Frequency	Presentation (%)
Hospital of Origin	Jatiwinangun Specialist Hospital	30	14,8
	Ananda General Hospital, Purwokerto	93	45,8
	Wijayakusuma Level III Hospital	80	39,4
Gender	Man	68	33,5
	Woman	135	66,5
Age	<20	6	3,0
	21-30	101	49,8
	31-40	96	47,3
Marital status	Marry	143	70,4
	Single	60	29,6
Length of work	<1 Year	30	14,8
	1-5 Year	63	31,0
	6-10 Year	72	35,5
	11-15 Year	38	18,7
Last education	High School	2	1,0
	S1	86	42,4
	S2	1	,5
	Diploma	111	54,7
	Other	3	1,5

Table 1 displays the demographic results of the majority of respondents. The respondents obtained mostly came from Ananda Purwokerto General Hospital with a total of 93 respondents (45.8%), the highest percentage was found in this institution, which was supported by a larger number of workers or higher respondent involvement compared to other facilities. In terms of gender, the respondents were mostly female (66.5%), reflecting the general condition of the health workforce in Indonesia, where the majority of women work in the nursing field. Based on age, the largest group is aged 21-30 years (49.8%). In terms of education, the majority had diplomas, 111 (54.7%), this condition illustrates that medical and non-medical roles in health facilities generally require relevant educational qualifications and practical skills. In terms of length of service, the largest percentage was in the 6-10 years group with a total percentage (35.5%), this indicates that respondents have a good understanding of procedures, operations, and work culture within the organization.

Table 2. Outer Loading

	Statement Items	Outer Loading
SK.1	I know how to use safety equipment and standard procedures in the hospital	0,892
SK.2	I am aware of all the hazards associated with my job and the precautions that need to be taken when performing my job	0,914
SK.3	I know how to do my job in a safe manner	0,845
SK.4	I know what to do and when to report any potential hazards in my workplace	Rejected
SK.5	I know how to reduce the risk of accidents and incidents in hospitals	0,738
SK.6	I know how to maintain or improve health and safety in hospitals	Rejected

WSC.1	Management and supervisors listen and discuss issues related to occupational safety	0,844
WSC.2	Workers here receive adequate safety training to carry out their jobs safely. I typically work under high levels of stress	0,845
WSC.3	I usually work under high levels of stress	0,816
WSC.4	In our workplace, applicable safety regulations and procedures require the use of personal protective equipment (PPE) whenever necessary	0,878
WSC.5	At our workplace, applicable safety regulations and procedures are in place to protect employees from work accidents	0,881
WSC.6	Workers here are given enough time to complete their work safely	0,861
WSC.7	I am of the opinion that instructions regarding occupational health and safety are implemented in our workplace	0,779
WSC.8	Management acted quickly to address workplace safety issues. Management encouraged workers on the jobsite to provide input on safety issues	0,835
WSC.9	Management encourages workers at the work site to provide input regarding safety issues	0,840
WSC10	People here generally pay attention to occupational health and safety aspects. Workers here have sufficient skills to avoid workplace hazards	0,698
WSC.11	Workers here have sufficient skills to avoid hazards in the workplace	Rejected
WSC.12	I am of the opinion that conditions in the workplace support individuals to have hospital equipment checked before starting work to work safely	Rejected
SP.1	Hospital equipment is inspected before starting work	0,851
SP.2	Safety briefing is conducted before starting work	0,874
SP.3	Effective training on hazardous materials, medical devices, and evaluation is essential for hospital nurses	0,880
SP.4	The hospital work area is always clean and tidy	0,879
SP.5	Compliance with safety procedures, such as PPE and sterilization, prevents the spread of infection in hospitals	0,876
SP.6	Hospitals must prioritize efforts to prevent high-risk work accidents	0,888
SP.7	Safety oversight by nurses can increase hazard awareness and safety culture	0,846
SB.1	Wear personal protective equipment while working	0,802
SB.2	I maintain safety awareness in the hospital	Rejected
SB.3	I participate in setting safety goals	0,901
SB.4	I actively participate in safety meetings	0,875
SB.5	I comply with safety regulations and standard operating procedures in the hospital.	0,891
SB.6	I don't neglect safety, even when I'm in a hurry	0,867

Based on table 2, the initial step in PLS-SEM analysis is to evaluate the measurement model (outer model) to ensure that the construct validity and reliability are met. Evaluation is carried out by examining the outer loading value to assess the contribution of each indicator to the construct being measured. The results of the first test showed that all indicators had outer loading values above the minimum limit of 0.6, so that convergent validity was declared fulfilled.

However, the results of the discriminant validity test in the first round showed that the model did not fully meet the criteria, which indicated that there were still indicators that had a high level of correlation with other constructs. To improve the clarity and accuracy of construct measurement, further evaluation was carried out by eliminating indicators SK.4, SK.6, WSC.11, WSC.12 and SB.2. After the removal of these indicators, a recalculation was carried out in the second round, the results of the analysis showed that the validity discriminant had been fulfilled, so that the measurement model was declared to be able to proceed to the next testing stage.

Table 3. Reliability and Validity Constructs

	Cronbach's Alpha	Rho_A	Composite Reliability	Average Variance Extracted (AVE)
Safety Knowledge	0,869	0,874	0,912	0,722
Workplace Safety Climate	0,949	0,950	0,956	0,687
Safety Behavior	0,918	0,919	0,938	0,753
Safety Performance	0,947	0,947	0,956	0,758

Based on table 3. This shows that the Reliability and Construct Validity values for the variables of safety knowledge, workplace The Average variance extracted (AVE) value also shows that the overall construct value is greater than 0.5. Therefore, all these variables can be declared reliable.

Table 4. Model Fit

	Saturated Model	Estimation Model
SRMR	0.074	0.074
d_ULS	1.918	1.918
d_G	2.257	2.257
Chi-Square	1773.683	1773.683
NFI	0.717	0.717

Based on table 4, the results of the model suitability test show an SRMR value of 0.08. This figure meets the recommended requirements, as it is within the 0.08 value limit. The d_ULS value is 1.918 while the d_G value is 2.257. On the other hand, the NFI value of 0.717 is less than 0.7 due to the limited data obtained. Based on these results, the overall model is assessed as having an adequate level of fit and is suitable for further analysis.

Table 5. Discriminant Validity

	Safety Behavior	Safety Knowledge	Safety Performance	Workplace Safety Climate
Safety Behavior	0,868			
Safety Knowledge	0,814	0,850		
Safety Performance	0,762	0,700	0,871	
Workplace Safety Climate	0,817	0,795	0,775	0,829

Based on the results of table 5, the results of the validity discriminant test using the Fornell-Larcker criteria show that the square root value of AVE for each construct is greater than the correlation value between other constructs. The square root value of AVE for safety behavior is 0.868, safety knowledge is 0.850, safety performance is 0.871 and workplace safety climate is 0.829. This shows that each construct has a good level of

discriminant, so it can be concluded that all constructs in the research model have met the discriminant validity criteria.

The R Square value of 0.741 shows that the four variables studied, namely safety knowledge, workplace safety climate, safety behavior and safety performance are able to explain 74.1% of the variation in safety performance. After adjusting for the number of variables and respondents, the Adjusted R Square value of 0.631 indicates that the model's ability to explain safety performance remains in the fairly good category. Meanwhile, 36.9% was influenced by other factors not discussed in this study.

Table 6. Path Coefficients

	Original sample	Sample mean	Standard Deviation	Statistics	Mark	Results
H1 : SK > SP	0,099	0,107	0,086	1,156	0,024	Rejected
H2 : WSC> SP	0,359	0,352	0,104	3,438	0,000	Accepted
H3 : SK >SB	0,447	0,444	0,066	6,754	0,000	Accepted
H4 : WSC > SB	0,461	0,464	0,064	7,216	0,000	Accepted
H5 : SB > SP	0,388	0,388	0,091	4,287	0,000	Accepted
H6 : SK > SB > SP	0,174	0,173	0,049	3,524	0,000	Accepted
H7 : WSC > SB > SP	0,179	0,180	0,048	3,735	0,000	Accepted

Based on the results of the analysis of table 6, it shows that the hypothesis acceptance or rejection test is carried out by looking at the original sample value and p-value, where the hypothesis is declared accepted if the p-value is less than 0.5 (hair et al, 2021). H1 shows that safety knowledge does not affect safety performance. This is indicated by the path coefficient value of 0.099 with a t-statistic value of 1.156 and a p-value of 0.024 so that H1 is rejected. H2 workplace safety climate has an effect on safety performance with a path coefficient value of 0.359, t-statistic of 3.438 and p-value of 0.000. Thus, H2 is accepted, which indicates that a good workplace safety climate can improve safety performance. H3 shows that safety knowledge influences safety behavior with a coefficient value of 0.447, a t-statistic of 6.754 and a p-value of 0.000. Therefore, H3 is accepted, which means the higher the safety knowledge an individual has, the better the safety behavior. H4 workplace safety climate influences safety behavior with a path coefficient value of 0.461, t-statistic of 7.216 and p-value of 0.000. Therefore, H4 is accepted, these results indicate that a workplace safety climate that supports safety encourages the emergence of positive safety behavior.

The results of H5 are that safety behavior has an effect on safety performance with a path coefficient value of 0.388, a t-statistic of 4.287 and a p-value of 0.000. Thus, H5 is accepted, which confirms that safety behavior is an important factor in improving safety performance. In the results of H6, safety knowledge influences safety performance through safety behavior with a path coefficient value of 0.174, a t-statistic of 3.524 and a p-value of 0.000. These results show that safety behavior is able to mediate the influence of safety knowledge on safety performance, so H6 is accepted. Furthermore, H7 workplace safety climate influences safety performance through safety behavior with a path coefficient value of 0.179, a t-statistic of 3.735 and a p-value of 0.000. Thus, H7 is accepted, which indicates that safety behavior plays a role as a mediating variable in the relationship between workplace safety climate and safety performance.

DISCUSSION

Safety Knowledge Has No Effect on Safety Performance

Based on the results of the first hypothesis test, it shows that safety knowledge has no effect on safety performance, therefore, H1 is rejected. This finding indicates that the level of safety knowledge possessed by nurses has not been able to directly improve safety performance in the hospital environment. Thus, understanding safety procedures, potential hazards, and preventive measures will not necessarily be reflected in increased safety performance if it is not followed by consistent application of safety knowledge.

According to Bandura (1986) *Social Cognitive Theory* (SCT), safety knowledge is an important cognitive factor, but it does not stand alone in shaping performance. Safety performance is influenced by the interaction between personal, environmental and behavioral factors. Even though nurses have adequate safety knowledge, limited work environment support, safety supervision or high workload pressure can hinder the application of safety knowledge to optimal safety performance.

The results of this study align with findings (Dhani et al., 2022; Karina & Ariffin, 2024) that stated that safety knowledge has no effect on safety performance. This research confirms that safety knowledge tends to be potential and only has a real impact when mediated by other factors, such as safety behavior, safety culture or work safety climate. In a hospital environment, dynamic working conditions, high patient care demands, and frequent emergency situations can cause nurses to focus more on completing primary tasks than on implementing comprehensive safety procedures. This allows for a gap between the knowledge possessed and the work practices carried out, so that safety knowledge is not yet able to directly encourage improvements in safety performance. Thus, the results of this study indicate that improving safety performance is not only sufficient through increasing safety knowledge, but needs to be supported by the formation of consistent safety behavior and a work environment that supports safety.

Workplace Safety Climate Affects Safety Performance

Based on research results, workplace safety climate has been proven to influence safety performance because employee perceptions of organizational safety support, rules, and commitment encourage them to work more safely and consistently. A work environment that emphasizes safety makes workers more compliant with procedures and is able to reduce the risk of accidents. This finding is in line with recent studies showing that a strong safety climate directly improves employee safety performance (Abeje et al., 2023)

According to Bandura (1986) Social Cognitive Theory (SCT), workplace safety climate influences safety performance in nurses because a work environment that prioritizes safety shapes nurses' perceptions, beliefs, and mindsets regarding the importance of working safely. Based on Social Cognitive Theory, safety behavior arises from the interaction between individual and environmental factors. When nurses see that leadership, rules, and work culture consistently support safety, they develop self-efficacy and motivation to act safely, resulting in significantly improved safety performance. This finding is supported by (Lestari et al., 2023; Puspitasari et al., 2024 dan Rifqi et al., 2022) showing that the workplace safety climate variable has a positive effect on Safety Performance.

Safety Knowledge Influences Safety Behavior

Research results show that safety knowledge influences the safety behavior of healthcare workers, and this finding is particularly relevant in hospital environments with high levels of occupational risk. Safety knowledge serves as a crucial foundation for healthcare workers to understand safe work procedures and implement patient safety standards. In a hospital environment, healthcare workers who have good safety knowledge

tend to be more consistent in implementing safe behaviors such as reporting safety incidents and using personal protective equipment (PPE). Adequate knowledge also improves the ability of health workers to recognize unsafe conditions, whether related to patients, the work environment, or medical equipment (Ramdaniati et al., 2023).

According to Bandura (1986) Social Cognitive Theory (SCT), safety knowledge influences safety behavior in nurses because safety knowledge is the cognitive basis for understanding clinical procedures, work risks, and preventive measures. Strong knowledge enhances nurses' self-efficacy, making them more confident and consistent in implementing safe behaviors, such as adherence to infection prevention standards, use of PPE, and patient safety procedures. Thus, the higher the safety knowledge that nurses have, the better the safety behaviors they demonstrate in daily practice. This finding aligns with research (Atikasari et al., 2022; Putra et al., 2022 dan Setiadi et al., 2025) that confirms that safety knowledge influences safety behavior.

Workplace safety climate influences safety behavior

Research results show that workplace safety climate influences the safety behavior of healthcare workers. These findings explain that when health workers experience a work environment that supports safety, whether through management commitment, clear policies, safety communication, or effective supervision, they are more likely to consistently implement safe work behaviors (Bagis et al., 2020). With a strong safety climate, healthcare workers will be more motivated to maintain safe behavior, thereby ensuring both occupational safety and patient safety.

Previous research results show that workplace safety climate influences safety behavior (Nosary & Adiati, 2021). A good work safety climate has been proven to increase safety behavior, reduce clinical errors, reduce the number of work-related injuries, and increase patient safety. When a hospital culture supports openness and non-blaming, healthcare workers are more willing to report incidents or unsafe conditions, which in turn improves overall safety behavior.

According to Bandura (1986) Social Cognitive Theory (SCT), workplace safety climate influences safety behavior because a positive safety climate shapes workers' perceptions, motivation, and self-confidence to act safely. A work environment that demonstrates a commitment to safety through management support, clear communication, and role modeling increases self-efficacy so that workers more consistently comply with safety procedures. Thus, the more positive the safety climate in the workplace, the better the safety behavior demonstrated by workers. This finding aligns with research (Hubert et al., 2025; Lee et al., 2024; Zhao & Li, 2024) which confirms that workplace safety climate influences safety behavior.

Safety Behavior Influences Safety Performance

Research shows that safety behavior influences safety performance (Wijaya et al., 2024). This finding explains that when workers including healthcare workers in a hospital context display consistent safety behavior, overall safety performance also improves (Bagis, Adawqiyah, et al., 2025). Safety performance encompasses not only the level of compliance with safety procedures but also an individual's ability to prevent accidents, reduce risks, and maintain patient safety.

According to Bandura (1986) Social Cognitive Theory (SCT), individual behavior is shaped by the interaction of personal factors, the environment, and learning experiences. Thus, safe behavior becomes a real manifestation of the results of cognitive processes and a supportive environment, which ultimately encourages increased safety performance. This finding is in line with research conducted (Kamilah et al., 2021; Pratiwi et al., 2024; Siswanto & Amin, 2025) showing that safety behavior variables influence safety performance.

Safety Behavior Strengthens the Relationship Between Safety Knowledge and Safety Performance.

Based on the research results, safety behavior strengthens the relationship between safety knowledge and safety performance because safety knowledge will only produce high safety performance if it is applied in real behavior (Bagis et al., 2021). When workers understand safety procedures and consistently practice them, such as adhering to SOPs, using PPE, and recognizing and avoiding risks, the impact of this knowledge on safety performance is strengthened. In other words, high safety knowledge will contribute optimally to safety performance if followed by consistent safe behavior (Wijaya et al., 2024)

According to Bandura (1986) Social Cognitive Theory (SCT), the safety knowledge possessed by nurses will result in optimal safety performance if it is realized in real action. Nurses who understand safety procedures, infection prevention, and risk management will demonstrate consistent safety behavior such as adhering to SOPs, using PPE, and ensuring patient and personal safety. When this knowledge is applied in daily safety behavior, its impact on safety performance becomes stronger. Thus, safe behavior acts as a link that transforms nurses' safety knowledge into high safety performance. This finding is supported by (Putra et al., 2022 dan Wijaya et al., 2024) showing that the Safety Behavior variable strengthens the relationship between Safety Knowledge and Safety Performance.

Safety Behavior Strengthens the Relationship Between Workplace Safety Climate and Safety Performance.

Based on the research results, safety behavior strengthens the relationship between workplace safety climate and safety performance because a positive safety climate will only have a maximum impact if workers translate it into daily safe behavior (Darmawan et al., 2025). When the work environment supports safety through clear rules, supervision, and leadership commitment, workers who demonstrate consistent safety behaviors such as following procedures, using PPE, and actively reporting hazards will be able to leverage this safety climate to achieve higher safety performance. In other words, safe behavior is an important link that strengthens how much influence the work safety climate has on achieving safety performance (Putra et al., 2022)

According to Bandura (1986) Social Cognitive Theory (SCT), a work environment that supports safety influences nurses' beliefs, perceptions, and motivation to act safely. A positive safety climate, such as safety-conscious leadership, the availability of PPE, and good risk communication, encourages nurses to build self-efficacy and awareness to implement safe behaviors. When this environmental support is manifested by nurses in consistent safety behavior, such as following SOPs for actions, maintaining equipment cleanliness, and reporting potential hazards, the influence of workplace safety climate on safety performance becomes stronger. Thus, safe behavior becomes a key link that increases the effectiveness of the safety climate in producing optimal safety performance in the nursing environment. This finding is supported by (Putra et al., 2022 dan Wijaya et al., 2024) showing that the Safety Behavior variable strengthens the relationship between Safety Knowledge and Safety Performance.

CONCLUSION

He overall research results show that individual and environmental factors play an important role in shaping the behavior and safety performance of health workers. However, safety knowledge has been shown to not always influence safety performance. This condition can occur if the organization has not provided adequate safety support or resources, so that knowledge is not sufficient to produce optimal safety performance. This is in line with several previous studies which found that safe behavior cannot always

improve safety performance without supporting environmental factors. Furthermore, workplace safety climate also influences safety performance, as perceptions of the organization's safety commitment encourage healthcare workers to work more safely and consistently.

Safety knowledge has been proven to influence safety behavior, where good knowledge makes health workers better able to recognize risks and implement safety procedures. This finding is in line with various previous studies which confirm that safety understanding contributes directly to the emergence of safe behavior in the workplace. In addition, workplace safety climate has also been shown to influence safety behavior, because a work environment that supports safety encourages healthcare workers to be more compliant with safe work procedures, report incidents, and maintain patient and personal safety.

Furthermore, safety behavior has been proven to influence safety performance. When healthcare workers consistently implement safe behaviors such as adhering to SOP, using PPE, and recognizing hazards, safety performance improves significantly. This finding is also supported by previous research which emphasized that safety behavior is an important factor in preventing workplace accidents and improving patient safety.

This study also confirms that safety behavior strengthens the relationship between safety knowledge and safety performance. Safety knowledge will provide optimal results if it is followed by consistent safe behavior. Similarly, safety behavior strengthens the influence of workplace safety climate on safety performance, because a positive safety climate will have a stronger impact on safety performance if translated into concrete actions. Overall, these findings indicate that increasing safety knowledge, strengthening the safety climate, and establishing safe behaviors are key strategies in improving the safety performance of healthcare workers in the hospital environment. The limitation of this study is that it only covers three hospitals in Purwokerto, so the results cannot be generalized to other areas.

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