

## The Relationship between Work Culture and Work Environment with Patient Safety in the Surgical Inpatient Room

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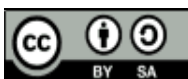
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### ABSTRACT

Patient safety is a system designed to make patient care safer, including risk assessment, risk identification and management, and incident reporting and analysis. The World Health Organization emphasized in 2020 the need for increased attention to patient safety in hospitals. This study aimed to determine the relationships among patient safety culture, the work environment, and patient safety in the surgical ward of RSUD Jenderal Ahmad Yani, Metro City, Lampung Province, in 2025. This research used a quantitative, analytical, cross-sectional design. The study was conducted from 16 May to 28 May, 2025. The population consisted of 70 nurses working in the surgical ward, with a sample of 52 respondents selected. Data were collected using an observation sheet to assess work culture and questionnaires to measure the work environment and patient safety. Patient safety was treated as the dependent variable. In contrast, work culture and work environment were the independent variables. Data analysis was performed using the chi-square test. The results showed that 29 respondents (55.8%) had good patient safety, 37 respondents (71.2%) had a positive work culture, and 35 respondents (67.3%) experienced a conducive work environment. Statistical analysis indicated a significant relationship between work culture and patient safety ( $p = 0.001$ ) and between the work environment and patient safety ( $p = 0.018$ ). In conclusion, work culture and the work environment are significantly associated with patient safety. Hospitals are recommended to strengthen nursing management by fostering a supportive work environment in the surgical ward.



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## INTRODUCTION

Patient safety is a fundamental aspect of healthcare services that every hospital must prioritize. There is a close relationship between patient safety and a hospital's reputation; when patients feel safe, their trust in the hospital also increases. Therefore, protecting patients from unexpected conditions is the primary goal of patient safety initiatives.

Patient safety is a system that makes patient care safer, including risk assessment, identification and management of patient risks, incident reporting and analysis, the ability to learn from incidents and their follow-up, and the implementation of solutions to minimize risks and prevent injuries caused by errors due to performing an action or failing to take necessary action (Ministry of Health Republic Indonesia, 2017).

The World Health Organization reported in 2020 that special attention is needed to ensure patient safety in hospitals. This is supported by the Institute of Medicine (IOM), which in 2020 reported that the United States experienced 98,000 deaths due to preventable medical errors. Several studies in Joint Commission International (JCI) accredited hospitals found 52 incidents across 11 hospitals in 5 countries. The highest number of cases was in Hong Kong at 31%, followed by Australia at 25%, India at 23%, the United States at 12%, and Canada at 10% (World Health Organization, 2021).

Patient safety cases have become a concern in several countries, as adverse events continue to occur. The Centers for Disease Control and Prevention (CDC) estimated that more than 380,000 sharp-object injuries occur among healthcare workers in U.S. hospitals. It is estimated that among all healthcare worker injuries, 600,000 to 800,000 involve needle sticks or other sharp objects contaminated with blood-borne pathogens such as HIV, Hepatitis B virus, and Hepatitis C virus. Adverse events in hospitals across several countries (the United States, the United Kingdom, Denmark, and Australia) range from 3.2% to 16.6% (Muhammad et al., 2020).

Patient safety incidents in Indonesia showed 7,465 cases in 2019, consisting of 171 deaths, 80 severe injuries, 372 moderate injuries, 1,183 minor injuries, and 5,659 cases without injury. Indonesia has 2,877 accredited hospitals, yet only 12% of patient safety incidents were reported, totaling 7,465 cases. These consisted of 38% near-miss incidents, 31% no-harm incidents, and 31% adverse events (Toyo et al., 2022).

Reports from the Indonesian Hospital Patient Safety Committee based on provinces during Quarter 1 (January–April 2010) showed that West Java ranked highest at 33.33%, followed by Banten 20.0%, Central Java 20.0%, Jakarta 16.67%, Bali 6.67%, and East Java 3.37%. Additionally, 38 patient safety incidents were recorded at Hospital X, including 8 incidents related to Patient Safety Goal 1, 13 to Goal 2, 7 to Goal 5, and 10 to Goal 6, consisting of 9 near-miss incidents, 8 no-harm incidents, and 21 adverse events (Wibisono et al., 2024). Internal audit results at RSPWS (Regional Public Service Hospital) in November 2016 found near-miss incidents at 36.84%, including wrong medication routes, patient falls, incorrect room price information, and surgical site infections; potential injury incidents at 21.05% involving errors in patient sample identification; and adverse events at 15.79%, including cases of phlebitis (Galleryzki et al., 2021).

Patient safety culture is a pattern of human and organizational behavior integrated into the provision of injury-free, safe services. It reflects the values, attitudes, competencies, and behavioral patterns of individuals and groups working toward health and safety management. Building a patient safety culture is a means of developing overall patient safety programs. By focusing more on patient safety culture, greater safety outcomes can be achieved compared to focusing solely on programs.

According to Malinowska-Lipień et al. (2021), management support is a key factor in creating a positive work environment, which, in turn, encourages the development of nursing practices and patient safety. Managerial characteristics such as openness, involvement in decision-making, flexibility, and staff support strongly influence job satisfaction. This support also contributes to higher retention of qualified professionals. It reduces staff turnover intentions, indicating that effective leadership and consistent management support directly impact healthcare quality and staff well-being.

Based on research by Hadinata & Aryawati (2024), among 139 nurses at RSPBA Bandar Lampung, 99 (71.2%) implemented patient safety comprehensively, while 40 (28.8%) did not. A total of 66 nurses (47.5%) had a good safety culture, while 73 (52.5%) had a poor safety culture. The internal audit results at Regional Public Service Hospital (RSPWS) in November 2016 showed a relatively high proportion of near-miss incidents (36.84%), including errors in medication administration routes, patient falls, inaccurate room cost information, and surgical site infections. These findings indicate that patient safety incidents—particularly near misses—remain a significant concern in healthcare settings.

At RSUD Jenderal Ahmad Yani (RSAY) Metro City, the initial condition underlying this study is assumed to be similar, based on preliminary observations by the researcher. Although specific internal audit data at RSAY may not be explicitly reported, early findings suggest that patient safety implementation has not been fully optimal. This can be seen in incidents such as unsafe nursing practices, inconsistent adherence to standard operating procedures (SOPs), and suboptimal incident reporting.

In addition, several factors were identified that may contribute to these conditions, including a less supportive work culture (e.g., limited communication, lack of teamwork) and a work environment that is not always conducive (e.g., high workload, inadequate facilities, and work stress). These issues can increase the risk of patient safety incidents if not properly addressed.

Therefore, the study was conducted at RSAY because there were indications of patient safety problems and contributing factors related to work culture and the work environment. This

forms the basis for analyzing whether there is a significant relationship between these variables in the surgical inpatient ward.

## METHOD

This type of research is quantitative, using a cross-sectional design. This research was conducted on May 16-May 28, 2025. The population in this study comprises 70 nurses who work in the surgical inpatient unit of the General Ahmad Yani Metro Hospital, Lampung Province, and the sample comprises 52 nurse respondents. This research instrument uses observation sheets (work culture) and questionnaire sheets (work environment and patient safety), with patient safety as the dependent variable and work culture and work environment as independent variables. The statistical test used was the chi-square test. This study has obtained ethical approval from the Health Research Ethics Committee of Poltekkes Kemenkes Tanjung Karang, with Ethical Clearance Number 279/KEPK-TJK/V/2025.

## RESULTS

**Table 1. Frequency distribution of respondents by age, gender, and education**

Characteristics	f	%
Age		
< 35 years	29	55.8
≥ 35 years	23	44.2
Gender		
Female	35	67.3
Male	17	32.7
Education Level		
Diploma III (D III)	31	59.6
Professional Nurse (Ners)	21	40.4
Length of Work Experience		
> 3 years	32	61.5
≤ 3 years	20	38.5

Table 1 shows that from 52 respondents, the most age category was obtained <35 years as many as 29 (55.8%) respondents, then the most gender category in women as many as 35 (67.3%), then the most education category, namely DIII education as many as 31 (59.6%) respondents, and the category of service period was >3 years as many as (61.5%) respondents.

**Table 2. Distribution of patient safety frequency, work culture, and work environment in the surgical inpatient room**

Variable	f	%
Patient safety		
Good attitude in maintaining patient safety	29	55.8
Poor attitude in maintaining patient safety	23	44.2
Work culture		
Good behavior	37	71.2
Poor behavior	15	28.8
Work environment		
Conducive environment	35	67.3
Non-conducive environment	17	32.7

Table 2 shows that from 52 respondents, the category of good attitude to maintain patient safety as many as 29 (55.8%) respondents and the category of poor attitude to maintain patient safety as many as 23 (44.2%) respondents, the category of good behavior as many as 37 (71.2%) respondents and the category of bad behavior as many as 15 (28.8%) respondents, the work

environment category is conducive to the environment as many as 35 (67.3%) respondents and the work environment category unconducive environment as many as 17 (32.7%) respondents.

**Table 3. The relationship between work culture and patient safety in the surgical inpatient room**

Work culture	Patient safety				Total	p-value	OR
	Good attitude in maintaining patient safety		Poor attitude in maintaining patient safety				
	n	%	n	%			
Good behavior	26	70.3	11	29.7	37	100	0.000 (2.22-40.23)
Poor behavior	3	20.0	12	80.0	15	100	
Total	29	55.8	23	44.2	52	100	

The results of the analysis show that of the 37 respondents who behaved well, 26 (70.3%) maintained patient safety, and 11 (29.7%) had a bad attitude toward maintaining patient safety. Of the 15 respondents who behaved poorly, 3 (20%) maintained patient safety, while 12 (80%) had a poor attitude toward it. Thus, more well-behaved respondents had a stronger attitude toward maintaining patient safety than those who behaved poorly. From the chi-square test results, a p-value of 0.000 ( $\alpha = 0.05$ ) was obtained, indicating a relationship between work culture and patient safety in the surgical inpatient room of the General Ahmad Yani Metro Hospital, Lampung Province, in 2025. The analysis also yielded an OR of 9.45 and a CI interval of 2.22-40.23, indicating that nurses with a good work culture have a 9.45 times greater chance of patient safety than those with a bad work culture.

**Table 4. The relationship between the work environment and patient safety in the surgical inpatient room**

Work environment	Patient safety				Total	p-value	OR
	Good attitude in maintaining patient safety		Poor attitude in maintaining patient safety				
	n	%	n	%			
Conducive environment	24	68,6	11	31,4	35	100	0.001 (1.47-18.53)
Non-conducive environment	5	29,4	12	70,6	17	100	
Total	29	55,8	23	44,2	52	100	

The results of Table 4 show that, among the 35 respondents with a conducive environment, 24 (68.6%) have a good attitude toward maintaining patient safety, while 11 (31.4%) have a poor attitude. Of the 17 respondents whose environment was not conducive, 5 (29.4%) maintained a good attitude toward patient safety, whereas 12 (70.6%) had a bad attitude. Thus, respondents in a conducive environment have a better attitude toward maintaining patient safety than those in an unconducive environment.

From the chi-square test results, a p-value of 0.001 ( $\alpha = 0.05$ ) was obtained, indicating a relationship between the work environment and patient safety in the surgical inpatient room of the General Ahmad Yani Metro Hospital, Lampung Province, in 2025. The results of the analysis also obtained an OR value of 5.23 and a CI interval of 1.47-18.53, which means that nurses have a conducive environmental work environment 5.23 times greater chance of patient safety than the work environment in the unconducive environment

## DISCUSSION

### **The relationship between work culture and patient safety in the surgical inpatient ward**

More respondents with good behavior demonstrated positive attitudes toward maintaining patient safety than those with poor behavior, and there is a relationship between work culture and patient safety in the surgical inpatient ward at RSUD Jenderal Ahmad Yani Metro, Lampung Province, in 2025. The analysis also showed that nurses with a good work culture behavior category were 9.45 times more likely to support patient safety compared to those with a poor work culture behavior category.

According to Ratanto et al. (2023), patient safety culture refers to the extent to which organizational culture supports and promotes patient safety. It relates to the shared values, beliefs, and norms held by healthcare practitioners and other staff throughout the organization that influence their actions and behaviors. Patient safety culture can be measured by identifying the values, beliefs, norms, and behaviors related to patient safety that are valued, supported, expected, and accepted within an organization. Patient safety is an effort to prevent, avoid, and protect patients from unnecessary or potential injuries that may occur during healthcare services, thereby making patients safer (Ratanto et al., 2023)

Patient safety culture directly influences the occurrence of patient safety incidents. A strong, positive culture reduces errors, improves reporting, enhances teamwork, and ultimately ensures safer patient care. Conversely, a weak safety culture increases the likelihood of incidents, highlighting the importance of strengthening organizational values and practices related to patient safety (Lungu, 2023). The results of this study are consistent with the research conducted by Karmila et al. (2023), with chi-square showing a relationship between patient safety culture and patient safety incident reporting, with a p-value of 0.009 ( $<\alpha = 0.05$ ). This study is also in line with previous research, which used Spearman's rank to show a relationship between patient safety culture and patient safety goals, with a p-value of 0.000 ( $<\alpha = 0.05$ ) (Syarifah et al., 2025).

According to the researcher's opinion, a good work culture includes values such as openness in expressing opinions, strong teamwork, and commitment to safety standards. A positive work culture not only improves individual performance but also creates a sense of security for patients. Conversely, a poor work culture is often characterized by ineffective communication, lack of peer support, and improper implementation of procedures. Uncertainty in procedures and a lack of support can make individuals feel pressured and less confident in making decisions related to patient safety.

### **The relationship between the work environment and patient safety in the surgical inpatient ward**

More respondents who worked in a conducive environment demonstrated positive attitudes toward maintaining patient safety than those in a non-conducive environment, and there is a relationship between the work environment and patient safety in the surgical inpatient ward at RSUD Jenderal Ahmad Yani Metro, Lampung Province, in 2025. The analysis also showed that nurses working in a conducive environment were 5.23 times more likely to support patient safety compared to those working in a non-conducive environment.

According to Rachmawati & Harigustian (2019), the work environment influences individual motivation in implementing patient safety. For example, a work environment with clear systems can minimize confusion or hesitation among medical staff when performing patient care tasks. Appropriate workload distribution, clear task delegation, and other factors can influence individual efforts to improve patient safety. Patient safety is the effort to prevent, avoid, and protect patients from unnecessary or potential injuries that may occur during healthcare services, thereby ensuring patient safety. First, the physical work environment includes adequate facilities, medical equipment, lighting, cleanliness, and workspace layout. An organized and well-equipped environment reduces the risk of errors such as incorrect medication administration, patient falls, and procedural mistakes. For example, incomplete equipment or poorly arranged rooms can delay interventions and increase the likelihood of adverse events (Ratanto et al., 2023; Ree et al., 2019).

Second, workload and staffing are critical components. Excessive workload and an insufficient nurse-to-patient ratio can lead to fatigue, decreased concentration, and burnout, significantly increasing the risk of errors. Conversely, appropriate workload distribution supports optimal performance and allows nurses to follow patient safety procedures more carefully.

Third, organizational systems and procedures include clear standard operating procedures (SOPs), effective communication systems, and structured reporting mechanisms. A well-defined system minimizes confusion and ensures that every healthcare worker understands their roles and responsibilities, thereby reducing variability in care delivery.

Fourth, leadership and supervision also influence patient safety. Supportive leadership fosters guidance, monitoring, and evaluation of staff performance. Leaders who actively promote patient safety encourage compliance with standards and facilitate problem-solving when risks arise.

Fifth, the psychosocial environment, such as teamwork, communication, and interpersonal relationships, is equally important. A collaborative and respectful work atmosphere enhances coordination among healthcare providers, reduces misunderstandings, and supports timely decision-making (Johannessen, 2021).

Patient safety aims to prevent harm to patients during healthcare services. Therefore, these work environment components collectively shape the effectiveness of patient safety implementation in practice (Ratanto et al., 2023).

In relation to the study results, the finding that a conducive work environment is associated with better patient safety can be explained through these components. A supportive physical setting, manageable workload, clear systems, effective leadership, and positive teamwork all contribute to minimizing risks and improving safety outcomes. Thus, the discussion should explicitly connect these components to the findings, ensuring consistency with the conclusion that the work environment significantly influences patient safety (Krishnasamy et al., 2023). The results of this study are consistent with research by Oktariani & Murharyati (2015), with chi-square test results indicating a relationship between work environment factors and the implementation of patient safety ( $p\text{-value} = 0.034 < \alpha = 0.05$ ).

According to the researcher, a conducive work environment is essential to ensuring patient safety. A conducive work environment includes various aspects, both physical and psychological, that support healthcare workers' performance in providing patient care. Adequate facilities, environmental cleanliness, and good relationships among colleagues and supervisors can create a comfortable and supportive working atmosphere. Conversely, a non-conductive work environment can lead to stress and fatigue among healthcare workers, potentially reducing the quality of care provided. Therefore, hospitals and healthcare facilities must create a conducive work environment to enhance patient safety. This can be achieved through facility improvements, strengthening interpersonal relationships, and prioritizing the well-being of healthcare workers.

## CONCLUSION

The results indicate a significant relationship between work culture and work environment with patient safety in the surgical inpatient ward at RSUD Jenderal Ahmad Yani, Metro City, Lampung Province, in 2025. A positive work culture and a supportive work environment contribute to better implementation of patient safety practices. It is recommended that hospital management strengthen nursing management by creating a more conducive work environment, including appropriate workload distribution, adequate facilities, effective communication systems, and supportive supervision. Improving these aspects is expected to enhance the quality of patient care and minimize the risk of patient safety incidents.

## AUTHOR'S DECLARATION

### Authors' contributions and responsibilities

**LAF:** Writing original draft, visualization, conceptualization; **AA:** Supervision (lead), validation (equal), and visualization (equal), review, editing; **GU, KK:** Visualization, conceptualization, review, and editing; **TN:** Review and editing.

### Availability of data and materials

All data are available from all authors.

### Competing interests

The authors declare no competing interests.

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