Measuring Health Workers Perspectives of Patient Safety Culture in Indonesian Hospital Using HSOPSC

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Abstract

Patient safety is a critical component of healthcare quality, with an increasing emphasis on cultivating a strong safety culture within healthcare organizations. A robust safety culture is linked to improved patient outcomes, particularly in hospital settings. This study contributes to the international literature by examining the perceptions of safety culture among healthcare professionals in Indonesia through a cross-sectional survey involving 100 health workers using the Hospital Survey on Patient Safety Culture (HSOPSC) instrument. Descriptive and inferential statistics were employed to analyze the data, revealing that the dimension of organizational learning and continuous improvement received the highest positive response rate (83%), while teamwork across hospital units was notably low at 43.8%. Multiple regression analysis revealed that organizational learning and continuous improvement was the most significant predictor of overall safety perceptions ($\beta = 3.975$, $p = 0.000$), emphasizing the importance of sustained learning in fostering a robust safety culture. This study highlights the need for structured training programs on teamwork and error reporting without penalty, advocating for enhanced healthcare policies in Indonesia to strengthen patient safety culture.

Keywords: *Safety Culture, Healthcare Quality, Hospital Survey on Patient Safety Culture (HSOPSC)*

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Introduction

The prevention and mitigation of medical errors, both active and latent, represents a global challenge to patient safety (Higham & Vincent, 2021). Such errors have the potential to cause harm to patients during the course of their treatment and care. Adverse events are reported as one of the ten leading causes of morbidity and mortality globally, with approximately 50% of cases deemed preventable. Furthermore, the most prevalent medical errors were linked to misdiagnosis and medication errors. The patient safety culture of an organization is shaped by individual and organizational shared values, attitudes, perceptions, competencies, and patterns of behavior that influence the commitment, style, and competence of managing the health and safety of an organization (Waterson et al., 2019). The safety culture, an essential aspect of the health system, reflects the quality of healthcare services being provided, the level of system credibility, and the resilience to adverse events (Segura-García et al., 2023; Thu et al., 2023). As indicated in the IOM report To Err is Human: Building A Safer Health System, there were 98,000 deaths in the United States of America in 2000 that were attributed to medical errors (Ulrich & Kear, 2014). A total of 52 incidences were reported in 11 JCI-accredited hospitals across five countries (Buharia et al., 2018). The majority of cases (31%) originate from Hong Kong, followed by Australia (25%), India (23%), the United States of America (12%), and Canada (10%). In contrast, the number of cases in Indonesia in 2019 was 7,465. Of these cases,

171 resulted in fatalities, 80 in serious damage, 372 in moderate injury, 1,183 in mild injury, and 5,659 in no injury (Habibah & Dhamanti, 2021; Pangastuti & Sundari, 2024).

The Hospital Survey on Patient Safety Culture (HSOPSC), developed by the Agency for Healthcare Research and Quality (AHRQ), represents a crucial instrument for the assessment of perceptions of patient safety culture in healthcare organizations (Sorra et al., 2018). The tool enables hospitals to undertake a systematic evaluation of a range of dimensions pertaining to the safety culture, including communication about errors, organisational learning, and teamwork. This structured assessment enables the identification of both strengths and weaknesses within the organization, thereby facilitating the implementation of targeted interventions designed to enhance patient safety (Araripe et al., 2020; Behzadifar et al., 2019; Stoyanova et al., 2021). The HSOPSC is a widely utilized instrument not only in the United States but also internationally, as evidenced by research findings. The HSOPSC provides a standardized measure that facilitates benchmarking against other institutions. For example, studies have demonstrated that hospitals employing the HSOPSC are able to monitor fluctuations in their safety culture over time, thereby enabling them to assess the efficacy of implemented safety measures (Jones et al., 2024; Thu et al., 2023).

A review of the National Committee for Patient Safety in the Reporting and Learning System for National Patient Safety (SP2PKN) over the past five years (2015-2019) reveals a notable increase in the number of incident reports filed in hospitals. The number of incident reports in Indonesia has increased by 11% over the past five years, from 2015 to 2019. Details of the data for these years are provided below. The number of incident reports in Indonesia increased by 11% over the five-year period from 2015 to 2019. In 2015, there were 289 reports, in 2016 there were 668 reports, in 2017 there were 1647 reports, in 2018 there were 1489 reports, and in 2019 there were 7465 reports. The data regarding patient safety incidents encompass three categories: injuries (KNC), non-injury events (NIE), and adverse events (AE). In reporting patient safety incidents, 171 individuals died, 80 sustained serious injuries, 372 experienced moderate injuries, 1183 had slight injuries, and 5659 were not injured (Sistem Pelaporan Insiden Keselamatan Pasien, 2020; Ramadhaini et al., 2021). In Indonesia, the total number of accredited hospitals is 1227. In 2016, there were only 668 reports of patient safety incidents nationally, indicating that the patient safety incident reporting system in Indonesia is still underdeveloped and under-reported (Dhamanti et al., 2022). In Indonesia, the 2007 report on patient safety incidents by province indicated that 145 incidents were reported, with the highest incidence rates observed in Central Java (15.9%), Yogyakarta (13.8%), East Java (11.7%), and South East Java (6.9%). The provinces of South Sumatra, West Java, Bali, and Aceh reported rates of 2.8%, 1.4%, 0.69%, and 0.68%, respectively. Aceh reported the lowest rate in the Jakarta area at 0.68% (37.9%) (Juliani et al., 2021).

Indonesia encounters significant challenges in creating a strong patient safety culture within its healthcare system, primarily due to differences in hospital standards and issues with reporting. The quality of hospitals varies widely, with many not meeting established accreditation standards. Although the Hospital Law of 2009 aimed to improve oversight through the Commission for Accreditation of Hospitals (KARS), many facilities still do not participate, focusing more on management than on the quality of clinical care. Furthermore, healthcare resources are unevenly distributed, with well-equipped hospitals concentrated in urban areas like Java, while rural regions face shortages of facilities and staff. Cultural factors also play a role, as fear of consequences often leads to underreporting of medical errors, which hampers efforts to improve patient safety. These issues underscore the need for specific strategies that

standardize hospital practices across Indonesia and create an environment where healthcare workers feel safe to report incidents, ultimately improving patient safety nationwide (Hort et al., 2013; Listyadewi & Trisnantoro, 2008).

The information regarding the factors influencing patient safety culture in Indonesian hospitals can be sourced from a variety of studies and literature reviews. One notable study identifies several key elements impacting this culture, including organizational policies, leadership commitment, training programs, and communication practices among healthcare professionals. These factors are critical as they shape how health staff perceive and engage with patient safety initiatives (Bauty et al., 2023). Furthermore, Indonesia is confronted with considerable challenges, including elevated rates of medical errors and disparate standards of care across its healthcare facilities. Assessing the perspectives of healthcare professionals including nurses, doctors, and administrative personnel provides invaluable insights into the strengths and weaknesses of current practices in patient safety. Engaging with these professionals allows researchers to gather diverse viewpoints that contribute to a more comprehensive understanding of the patient safety culture within Indonesian hospitals (Waterson et al., 2019). This gap emphasizes lies in the limited exploration of patient safety culture using the Hospital Survey on Patient Safety Culture (HSOPSC), especially regarding the specific perceptions and experiences of healthcare professionals in diverse healthcare settings.

A positive correlation has been identified between patient safety culture and staff well-being. This indicates that higher scores in patient safety culture are associated with lower levels of burnout and reduced turnover intention among healthcare professionals. This relationship indicates that an enhanced patient safety culture not only impacts the well-being of staff but also influences patients' perceptions of their safety and the quality of care they receive. Various factors, such as effective communication, leadership practices, established work procedures, and human factors, significantly contribute to shaping patient safety culture within healthcare settings (Mulyawati et al., 2024). The establishment of a patient safety culture in hospitals is a collective responsibility, particularly for those engaged in direct patient care. This enables them to identify potential risks and enhances patient safety and healthcare quality. It is essential to understand and address perceptions of patient safety culture among health workers to improve patient safety (Sorra et al., 2018). As an attempt, this study aimed to ascertain the perception of the HSOPSC regarding the 12 dimensions of patient safety culture (PSC) form the professional health workers view of a existing in the Indonesian hospital and explore both strengths and those area of concern that require further improvement in terms of achieving patient safety. The hypothesis proposed in this study is that there exists a significant correlation between the adoption of organizational learning and continuous improvement practices and enhanced safety perceptions among healthcare professionals in Indonesian hospitals. This hypothesis posits that the implementation of sustained learning processes will positively influence staff perceptions of safety, aligning with the empirical evidence suggesting that organizational learning is a critical determinant of safety culture.

Method

Participants

The research quantitative method for assessing the culture of patient safety from the perspective of health staff in Indonesian hospitals will employ a cross-sectional design, utilizing a structured questionnaire based on the Hospital Survey on Patient Safety Culture (HSOPSC). The study will target a population of 500 healthcare professionals across various hospitals in Indonesia, with a sample size of 100 participants selected through quota sampling to ensure

representation from different hospital departments and roles, including nurses, doctors, and administrative staff. The inclusion criteria for the samples were as follows: health care professionals (HCPs) who were full-time workers, engaged in daily tasks in the hospital, and permanent employees. HCPs with limited or no experience in their respective field were excluded from the study. Following the application of the aforementioned criteria, the number of HCPs included in the sampling frame was as follows: 16 physicians, 49 nurses, 4 midwives, 13 pharmacists, 1 physiotherapist, 1 nutritionist, 5 laboratory technicians, 7 medical recorders, 1 psychologist, 2 radiographers, and 1 dental therapist. Informed consent was provided and explained to the participants, and their participation was entirely voluntary.

Measurement

The HSOPSC is a validated tool for the evaluation of work environment efficiency and organizational processes, with the objective of preventing errors that may result in adverse reactions. The HSOPSC is regarded as one of the most scientifically rigorous tools currently available, exhibiting excellent psychometric properties and comprising a sufficiently large sample size (Suryani et al., 2022). The instruments used in the study had two parts, first demographic section was the first part which included question on sex, education, work unit, tenure in profession, tenure with hospital, tenure in the work area, patient safety grade, and number of events reported. Second section included question from the Hospital Survey on Patient Safety Culture (HSOPSC) by Agency for Healthcare Research and Quality's (AHRQ) (Sorra et al., 2018). HSOPSC measured perception about safety culture, 42 items were used in 12 dimensions including feedback about errors, communication openness, staffing, management support for patient safety, transitions and handovers, nonpunitive response to errors, organizational learning, supervisor/manager expectations, teamwork across units, teamwork within units, frequency of events reported, and overall perception of safety (Zabin et al., 2022). The survey used a Likert scale of 5 points (from 1 means 'strongly disagree' to 5 means 'strongly agree'). Some items were represented as (from 1 means 'always' to 5 means 'poor' (Sorra et al., 2012). The questionnaire has been validated and demonstrated to be reliable in a hospital with a similar case profile to that of the hospital where the research will be conducted. The results of the validity test conducted on 50 samples of health workers indicated that each variable exhibited a calculated r value exceeding 0.278, thereby demonstrating high validity. Consequently, all research instruments pertaining to each variable were deemed valid. The results of the reliability test indicate that all variables have a Cronbach's Alpha value exceeding 0.6, thereby establishing a relatively high level of reliability. Consequently, all variables included in the research instrument have been deemed reliable.

Procedure

The data presented herein was collected through the implementation of questionnaires and brief interviews with each respondent, commencing in July of 2024. The data collected from the editing, coding, entry data, and tabulation data by the Statistical Package for the Social Sciences (SPSS) v.24 software. The data collected will be subjected to logistic regression analysis to identify significant predictors of positive patient safety culture perceptions among healthcare professionals. This approach will facilitate a comprehensive understanding of the factors influencing patient safety culture in Indonesian hospitals and highlight potential areas for improvement. Research permits and ethics review information was obtained from Dean and Ethics Committee of the Faculty of Public Health, Universitas Diponegoro. Other approvals were sent from the respondents and respondents received an explanation of anonymity, confidentiality, principles, and the voluntary nature of their participation.

Data analysis

The research data were analyzed using multiple regression after testing for data normality, linearity, and multicollinearity. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) v.24 software.

Result

The survey was sent to a total of 100 healthcare professionals, and the overall response rate of 76.92 suggests that respondents generally perceive the patient safety culture at their hospital to be good, but that there may be room for improvement in certain areas. This study had shown that HSOPSC measured perception about safety culture, 42 items were used in 12 dimensions.

Table 1
Participant Characteristics

Demographic Factors	Number		Cumulative Percent
	Frequency	%	
Sex			
Male	17	17.0	17.0
Female	83	83.0	100.0
Education			
Associate's degree	51.0	51.0	51.0
Bachelor's degree	2	2.0	53.0
Professi	33	33.0	86.0
Specialist doctor education program	11	11.0	97.0
Master's degree	3	3.0	100.0
Work unit			
Pediatrics	11	11.0	11.0
Surgery	6	6.0	17.0
Medicine (non-surgical)	25	25.0	42.0
Obstetrics	5	5.0	47.0
Intensive care unit (any type)	2	2.0	49.0
Many different hospital unit/No spesific unit	3	3.0	52.0
Medicine (non-surgical) and surgical	15	15.0	67.0
Pediatrics and Obstetrics	3	3.0	70.0
Pharmacy	13	13.0	83.0
Rehabilitation	1	1.0	84.0
Dietician	1	1	85.0
Laboratory	5	5.0	90.0
Medical record	7	7.0	97.0
Rehabilitation	1	1.0	98.0
Radiology	2	2.0	100.0
Tenure in profession			
Less than 1 year	5	5.0	5.0
1-5 years	50	50.0	55.0
6-10 years	38	38.0	93.0
11-15 years	6	6.0	99.0
More than 21 years	1	1.0	100.0
Tenure with hospital			
Less than 1 year	14	14.0	14.0
1-5 years	52	52.0	66.0
6-10 years	34	34.0	100.0
Tenure in the work area			
Less than 1 year	18	18.0	18.0
1-5 years	53	53.0	71.0
6-10 years	29	29.0	100.0

Demographic Factors	Number		Cumulative Percent
Patient Safety Grade			
A (Excellent)	8	8.0	8.0
B (Very Good)	79	79.0	87.0
C (Acceptable)	13	13.0	100.0
Number of Events Reported			
No event reports	59	59.0	59.0
1 to 2 event reports	28	28.0	87.0
3 to 5 event reports	12	12.0	99.0
6 to 10 event reports	1	1.0	100.0

According to the characteristics of respondents (Table 1), the majority of respondents are female (83%), and the majority of respondents have completed an associate's degree (51%) in terms of their level of education. The mean majority of respondents employed in the work unit of medicine non-surgical (25%). The mean tenure in the profession is between one and five years (50%), while the mean tenure with the hospital is also between one and five years (52%). The mean tenure in the work area is 53%. The mean patient safety grade is B, which corresponds to a rating of "very good" (79%). The number of events reported is zero.

Table 2

Distribution of the Positive Response Rate of Health Professionals According to the Dimension of Patient Safety Culture

Item	Dimension	Rate of Positive Responses (%)	Remarks/ Recommendation
Teamwork within units			
A1	People support one another in this unit	83.8	Strength
A3	When a lot of work needs to be done quickly, we work together as a team to get the work done	85.4	
A4	In this unit, people treat each other with respect	84.2	
A11	When one area in this unit gets really busy, others help out	69.8	
Staffing			
A2	We have enough staff to handle the workload	86.0	Needs improvement
A5	Staff in this unit work longer hours than is best for patient care (R)	61.8	
A7	We use more agency/temporary staff than is best for patient care	54.8	
A14	We work in "crisis mode" trying to do too much, too quickly	65.2	
Organizational learning and continuous improvement			
A6	We are actively doing things to improve patient safety	83.0	Strength
A9	Mistakes have led to positive changes here	78.2	
A13	After we make changes to improve patient safety, we evaluate their effectiveness	81.8	
Non-punitive response to error			
A8	Staff feel like their mistakes are held against them (R)	73.2	Needs improvement
A12	When an event is reported, it feels like the person is being written up, not the problem (R)	58.8	
A16	Staff worry that mistakes they make are kept in their personnel file (R)	59.0	
Overall perception of safety			
A10	It is just by chance that more serious mistakes don't happen around here (R)	82.0	Needs improvement
A15	Patient safety is never sacrificed to get more work done	79.8	
A17	We have patient safety problems in this unit (R)	43.0	
A18	Our procedures and systems are good at preventing errors from happening	82.0	

Item	Dimension	Rate of Positive Responses (%)	Remarks/ Recommendation
Supervisor/manager expectations & actions promoting patient safety			
B1	My supervisor/manager says a good word when he/she sees a job done according to estab lished patient safety procedures	80.0	Strength
B2	My supervisor/manager seri ously considers staff suggestions for improving patient safety	82.4	
B3	Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts (R)	56.4	
B4	My supervisor/manager over looks patient safety problems that happen over and over (R)	41.6	
Feedback and communication about error			
C1	We are given feedback about changes put into place based on event reports	77.6	Strength
C3	We are informed about errors that happen in this unit	81.2	
C5	In this unit, we discuss ways to prevent errors from happening again	84.4	
Communication openness			
C2	Staff will freely speak up if they see something that may negatively affect patient care	74.8	Needs improvement
C4	Staff feel free to question the decisions or actions of those with more authority	70.8	
C6	Staff are afraid to ask questions when something does not seem right (R)	49.2	
Frequency of events reported			
D1	When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	77.0	Strength
D2	When a mistake is made, but has no potential to harm the patient, how often is this reported?	76.0	
D3	When a mistake is made that could harm the patient, but does not, how often is this reported?	77.2	
Hospital management support for patient safety			
F1	Hospital management provides a work climate that promotes patient safety	77.0	Needs improvement
F8	The actions of hospital manage ment show that patient safety is a top priority	80.4	
F9	Hospital management seems interested in patient safety only after an adverse event happens (R)	53.8	
Teamwork across hospital units			
A1	People support one another in this unit	79.4	Needs improvement
A3	When a lot of work needs to be done quickly, we work together as a team to get the work done	85.0	
A4	In this unit, people treat each other with respect	43.8	
A11	When one area in this unit gets really busy, others help out	45.2	
Hospital handoffs and transitions			
F3	Things “fall between the cracks” when transferring patients from one unit to another (R)	55.2	Needs improvement
F5	Important patient care informa tion is often lost during shift changes (R)	55.2	
F7	Problems often occur in the exchange of information across hospital units (R)	56.2	
F11	Shift changes are problematic for patients in this hospital (R)	58.8	

The distribution of positive response rates among health professionals regarding the dimensions of Patient Safety Culture (PSC) in Indonesian hospitals provides valuable insights into the perceptions of healthcare workers and highlights areas for improvement. The study assessed 12 dimensions, revealing strengths and weaknesses that are critical for enhancing patient safety. As illustrated in Table 2, the robust positive response rate is evident in the following dimensions: teamwork within units, organizational learning and continuous improvement, supervisor/manager expectations and actions promoting patient safety, feedback and communication about errors, and frequency of events reported. Conversely, the rate of positive responses that require improvement is evident in the following areas: staffing, non-punitive response to errors, overall perception of safety, communication openness, hospital management support for patient safety, and teamwork across hospital units and hospital handoffs and transitions. Before conducting the multiple regression analysis, the researchers checked the normality, linearity, and multicollinearity of the data. The assumption tests showed that all these assumptions were met.

Table 3

Multiple Regression Analysis of Patient Safety Culture Measures in Overall Perception Patient Safety Grade

Dimension	Variables	The Overall Perceptions of Safety		
		β	T-test	P*
1	Communication openness	-0.011	-0.592	0.555
2	Team work within units	0.000	-0.706	0.482
3	Teamwork across hospital units	-0.191	-2.869	0.005
4	Frequency of events reported	-0.148	-1.990	0.045
6	Hospital handoffs and transitions	0.366	5.961	0.000
7	Non-punitive response to error	0.279	4.088	0.000
8	Feedback and communication about error	0.401	5.938	0.000
9	Staffing	-0.258	-2.234	0.028
10	Organizational learning and continuous improvement	0.434	3.975	0.000
11	Supervisor/manager expectations & actions promoting patient safety	0.075	0.994	0.323
12	Hospital management support for patient safety	0.154	2.160	0.033

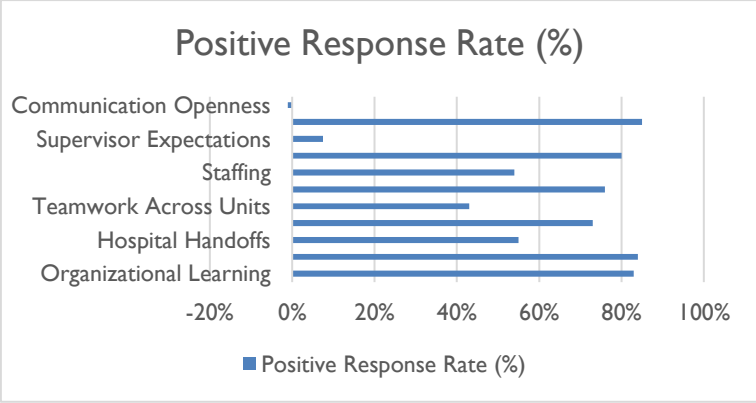

Figure 1. *Positive Response Rate (%)*

The multiple regression analysis of Patient Safety Culture (PSC) measures in relation to the overall perception of patient safety grade among health professionals in Indonesian hospitals yielded significant insights into the influence of various dimensions on safety perceptions. The analysis identified 12 key variables, each contributing uniquely to the overall perception of patient safety (Sorra et al., 2018). Table 3 presents the findings of the analysis of the dimensions

influencing overall perceptions of safety within the healthcare context. The results demonstrate a complex interplay between significant and non-significant factors. Among the significant dimensions, the "teamwork across hospital units" (β = -0.191, p = 0.005) and "frequency of events reported" (β = -0.148, p = 0.045) indicates an inverse relationship with safety perceptions. This suggests that a lack of reported safety events may reflect either underreporting or insufficient mechanisms to recognize safety issues. Subsequently, "hospital handoffs and transitions" (β = 0.366, p < 0.001) is identified as a significant factor that enhances perceptions of safety. This highlights the critical role that effective communication plays during patient transitions to ensure continuity and prevent errors. The dimension of "non-punitive responses to error" (β = 0.279, p < 0.001) is equally compelling, underscoring the significance of fostering an environment where staff feel safe to report errors without fear of retribution. This dimension is complemented by "feedback and communication about error" (β = 0.401, p < 0.001), which underscores the importance of constructive feedback for learning and improvement, and thus for enhancing safety perceptions. Nevertheless, obstacles remain evident in the staffing dimension (β = -0.258, p = 0.028), where inadequate staffing correlates negatively with safety perceptions. This suggests that increased workloads may detract from the ability to maintain safety standards. It is encouraging to note that "organizational learning and continuous improvement" (β = 0.434, p = 0.000) emerges as a crucial factor. This suggests that a dedication to continuous learning within the organization can play a pivotal role in enhancing safety perceptions. Additionally, the variable "hospital management support for patient safety" (β = 0.154, p = 0.033) is worthy of mention. This variable reinforces the importance of top-level support in fostering a culture of safety.

Dimension communication openness (β = -0.011, p = 0.555) underscores the significance of transparent communication among healthcare providers. Empirical evidence indicates that when staff members feel at ease discussing errors and near misses without apprehension of retribution, it culminates in enhanced patient safety outcomes. For example, a study conducted in Switzerland revealed that healthcare providers rated communication openness favorably, which correlated with superior teamwork and patient safety practices (Huang et al., 2018; Ricklin et al., 2019). Similarly, in Southeast Asia, cultivating an environment where staff can openly communicate about safety concerns is crucial for strengthening patient safety culture (Kang et al., 2021).

Teamwork within units (β = 0.000, p = 0.482) is a crucial element in ensuring patient safety. A body of research from a range of countries, including Taiwan and Peru, indicates that robust teamwork within healthcare units plays a pivotal role in enhancing patient safety. In Taiwan, for instance, teamwork was identified as a key driver of positive working conditions and stress recognition, which in turn led to an improvement in patient safety (Huang et al., 2018). Findings from the Southeast Asian context are in alignment with these results, indicating that healthcare providers recognize the necessity for collaboration and support within their teams to optimize safety outcomes (Kang et al., 2021).

The role of supervisor/manager expectations and actions promoting patient safety (β = 0.075, p = 0.323) is to set expectations and take action. This is a crucial aspect of patient safety that cannot be overlooked. Studies have shown that when supervisors and managers actively support patient safety initiatives and set clear expectations, it fosters a culture of safety. In a study from Iran, organizational learning and management support were identified as positive factors for implementing patient safety measures (Kang et al., 2021; Khoshakhlagh et al., 2019). This aligns with findings in Southeast Asia, where healthcare providers expressed the need for

supportive management to enhance patient safety culture (Kang et al., 2021).

Discussion

The aim of the study was to assess healthcare professionals' perceptions of the 12 dimensions of patient safety culture (PSC) in Indonesian hospitals, using the Hospital Survey on Patient Safety Culture (HSOPSC) framework as the basis for analysis. The results revealed a complex pattern of perceptions across the dimensions, highlighting the need for targeted interventions to promote a more robust safety culture. The primary objective of the research was to assess these perceptions using the Hospital Survey on Patient Safety Culture (HSOPSC), which serves as an important tool for identifying factors that contribute to patient safety outcomes. The results show that dimensions such as teamwork within units, organizational learning and continuous improvement, and feedback and communication about errors were perceived positively, with high positive response rates suggesting a strong collaborative environment. Based on Table 2, the results indicate that dimensions such as teamwork within units (85.4% positive responses) and organizational learning and continuous improvement (83.0% positive responses) were highlighted as strengths, suggesting a collaborative culture and proactive approach to safety improvements among healthcare staff. Conversely, the dimension of non-punitive response to error received a lower score (73.2%) and was marked as needing improvement, indicating that workers often feel that their mistakes are held against them, which can inhibit reporting and learning from errors (Zabin et al., 2022).

The substantial negative correlation between interdepartmental collaboration and overall perceptions of patient safety culture (β = -0.191, p = 0.005) highlights the pivotal role of interdepartmental collaboration in shaping safety outcomes. This finding indicates that deficiencies in interdepartmental collaboration may result in communication disruptions, increased errors, and ultimately a decline in patient safety perceptions. The extant literature demonstrates that effective teamwork is a crucial element in ensuring continuity of care, particularly during patient handoffs and transitions between departments (Hesselink et al., 2012). When teams across different units fail to collaborate effectively, patients may experience fragmented care, which can exacerbate safety risks and diminish the overall quality of healthcare services. Moreover, the perception of poor teamwork can contribute to the development of a culture of blame rather than one of collective responsibility, which can further exacerbate safety concerns within the organization (Sexton et al., 2006). The implementation of structured interdepartmental communication protocols, regular interdisciplinary meetings, and training programs can facilitate the enhancement of safety culture in Indonesian hospitals (Arad et al., 2022). These measures encourage the timely dissemination of information during patient transfers, facilitate the identification and resolution of potential safety concerns, and fortify the relationships among hospital staff. It is imperative that leadership fosters a culture that recognizes and rewards collaborative efforts, thereby reinforcing the significance of teamwork in achieving safety goals (Arad et al., 2022). This approach can markedly improve safety culture and patient outcomes.

The noteworthy finding regarding the "frequency of events reported" (β = -0.148, p = 0.0045) indicates an inverse relationship with overall perceptions of patient safety culture. This suggests that a diminished frequency of documented safety incidents may be indicative of underreporting or an absence of efficacious mechanisms for identifying safety concerns within the hospital environment. The distribution of event reports indicates that a substantial proportion of respondents (59%) reported no events at all, while only a small fraction reported more than five events. This pattern gives rise to concerns regarding the transparency and efficacy of the

reporting system currently in place. In healthcare settings, a culture that discourages reporting can result in a lack of awareness about potential hazards and risks, ultimately compromising patient safety (Rosen et al., 2018). Prior studies have demonstrated that organizations with higher rates of incident reporting tend to exhibit superior safety outcomes, as they are better equipped to identify and mitigate risks (Hesselink et al., 2012). In order to enhance the safety culture within Indonesian hospitals, a number of practical recommendations can be put forth. Firstly, hospitals should implement transparent and readily accessible reporting procedures that foster a culture of incident reporting among staff, wherein they are assured of protection from retaliation. Such measures might include the provision of anonymous reporting options and the scheduling of regular training sessions on the importance of reporting for patient safety. Secondly, the implementation of educational programs with a primary focus on patient safety and error reporting can facilitate a shift in organizational culture towards one that values transparency and the learning from mistakes (Buchan et al., 2015).

The variable of hospital handoffs and transitions ($\beta = 0.366$, $p < 0.001$) emerges as a pivotal determinant of enhanced safety perceptions. This highlights the significance of effective communication during patient transitions, which is essential for guaranteeing the continuity of care and minimizing the risk of errors. This highlights the significance of effective communication during patient transitions, which is crucial for maintaining continuity of care and reducing the likelihood of errors. Research findings corroborate this assertion, indicating that structured handoff protocols, such as the I-PASS framework, markedly enhance communication and diminish the incidence of medical errors during transitions (Blazin et al., 2020). This implies that interdepartmental collaboration and effective communication during transitions are vital for preventing errors and ensuring patient safety (Abdurrouf et al., 2023; Algethami et al., 2024; El-Jardali et al., 2010; Wahyuningsih et al., 2024).

The dimension of non-punitive responses to error ($\beta = 0.279$, $p < 0.001$) emerges as a significant factor influencing overall perceptions of patient safety culture, underscoring the critical importance of fostering an environment where healthcare professionals feel secure in reporting mistakes without fear of retribution. This dimension is of paramount importance, as it facilitates open communication about errors, which is essential for identifying systemic issues and implementing effective solutions. When healthcare professionals are assured that their errors will be met with understanding rather than punishment, they are more likely to report incidents, which allows for a more comprehensive understanding of the safety challenges faced by the organization and provides opportunities for improvement. The extant literature demonstrates that organizations with a robust non-punitive approach to error reporting exhibit improvements in safety culture and patient outcomes (Reis et al., 2018). For example, a study by (Benzer et al., 2017) revealed that hospitals with supportive environments for error reporting demonstrated lower rates of adverse events, thereby underscoring the link between a non-punitive culture and enhanced patient safety. Indonesian hospitals can enhance their safety culture by establishing clear non-punitive error response policies, implementing training programs to foster a blame-free environment, and facilitating open discussions about incidents. Leadership should model supportive behaviors and recognize contributions to safety improvements, ultimately embedding these practices into the organizational framework for continuous improvement (Mistri et al., 2023).

The dimension of feedback and communication about error ($\beta = 0.401$, $p < 0.001$) has a significant impact on the formation of overall perceptions of patient safety culture within healthcare settings. This robust positive correlation demonstrates that efficacious feedback

mechanisms and transparent communication channels regarding errors are vital for cultivating a culture of safety (Huang, 2022). When healthcare professionals are able to engage in open discourse regarding mistakes without fear of retribution, it encourages the reporting of such incidents and the transparency of information, both of which are essential for the identification of areas requiring improvement and the prevention of future incidents. The literature indicates that organizations with robust feedback systems not only enhance error reporting rates but also improve staff morale and trust in leadership, which ultimately leads to better patient outcomes (Rosen et al., 2018; Weaver et al., 2013). Conversely, a lack of effective communication can result in misunderstandings, repeated mistakes, and a general decline in safety culture, as staff may feel unsupported or undervalued. To improve the safety culture in Indonesian hospitals, it is recommended that structured feedback systems be implemented to facilitate prompt and constructive responses to reported errors. By prioritizing feedback and communication about errors, hospitals can foster a more supportive atmosphere that enhances overall patient safety perceptions.

The staffing dimension, indicated by a coefficient of (β = -0.258, p = 0.028), emerges as a significant factor negatively impacting overall perceptions of patient safety culture in Indonesian hospitals. This finding indicates that inadequate staffing levels may result in increased workloads for existing staff, which could potentially compromise their ability to maintain safety standards and provide high-quality care. A substantial body of research has demonstrated a clear correlation between inadequate staffing levels and an increased incidence of medical errors, burnout among healthcare professionals, and a decline in patient satisfaction (Aiken et al., 2014). When healthcare providers are overburdened, they may be unable to perform comprehensive checks or communicate effectively with colleagues, which can result in breaches of patient safety protocols (Palmieri et al., 2020). Moreover, the stress associated with high patient-to-staff ratios can impede staff from reporting safety concerns or engaging in collaborative problem-solving, ultimately fostering a culture where safety is deprioritized (Hahtela et al., 2017). To address these issues, Indonesian hospitals should conduct regular assessments of staffing needs based on patient acuity and workload demands. Implementing strategies such as hiring additional permanent staff, utilizing flexible staffing models, and ensuring adequate support during peak times can mitigate the negative impacts of understaffing. Additionally, fostering an organizational culture that values adequate staffing as essential for patient safety can help align management practices with frontline realities.

The dimension of organizational learning and continuous improvement (β = 0.434, p = 0.000) is a significant factor influencing overall perceptions of patient safety culture in healthcare settings. This dimension reflects an organization's commitment to learning from past experiences, including errors and near misses, and implementing changes that enhance patient safety. The positive correlation indicates that when healthcare professionals perceive their organization as one that actively engages in learning and improvement, they are more likely to feel confident in the safety measures in place. This finding is consistent with the results of a study conducted in Saudi Arabia, which demonstrated that continuous organizational learning has a significant impact on the perceptions of patient safety culture among healthcare workers (Alahmadi, 2010). An emphasis on learning creates an environment in which staff feel empowered to report incidents without fear of punishment, thereby increasing the likelihood of identifying and addressing safety issues proactively.

To further enhance the safety culture in Indonesian hospitals, several practical recommendations can be implemented. Hospitals should develop structured training programs

centered on continuous improvement methodologies, such as Plan-Do-Study-Act (PDSA) cycles, which encourage staff to engage in systematic problem-solving and innovation. The implementation of regular workshops can facilitate discussions around lessons learned from past incidents, thereby promoting a culture of transparency (Nugraheni et al., 2021). Furthermore, the establishment of multidisciplinary committees dedicated to the review of reported incidents and the implementation of corrective actions can enhance accountability and foster a collective responsibility for patient safety (Nordin et al., 2018). By embedding these practices into the organizational framework, Indonesian hospitals can cultivate a robust culture of organizational learning that prioritizes continuous improvement and ultimately enhances patient safety outcomes.

The dimension of "hospital management support for patient safety" ($\beta = 0.154$, $p = 0.033$) is a significant factor influencing overall perceptions of patient safety culture within healthcare organizations. This finding highlights the pivotal role that leadership plays in cultivating a culture of safety. Effective management support is a crucial element in fostering an environment where safety is a priority and staff feel empowered to report errors and near misses without fear of retribution. The extant literature indicates that when hospital leadership is actively engaged in safety initiatives and demonstrates a commitment to patient safety, it has a positive influence on staff perceptions and behaviors related to safety (Sorra et al., 2018). Moreover, management support can facilitate the implementation of safety protocols, provide necessary resources for training, and foster a culture of accountability that encourages all staff members to prioritize patient safety in their daily activities (Abdurrouf et al., 2023; Wahyuningsih et al., 2024). To enhance safety culture in Indonesian hospitals, practical recommendations include the establishment of regular communication channels between management and staff for the discussion of safety concerns and initiatives. Management should conduct regular safety audits and provide feedback on performance metrics related to patient safety, thereby reinforcing the importance of these issues at all levels (Mulyawati et al., 2024). Additionally, hospitals can implement leadership training programs that emphasize the importance of visibility and approachability in promoting a culture of safety.

The analysis indicates that specific dimensions, namely communication openness, teamwork within units, and supervisor/manager expectations and actions promoting patient safety, did not exert a notable influence on safety perceptions. This finding highlights the necessity for targeted interventions in these areas. Communication openness ($\beta = -0.011$, $p = 0.555$) is a particularly concerning factor, as it reflects a potential barrier to effective dialogue about safety concerns among healthcare staff. In numerous healthcare settings, a culture that discourages open communication can result in the underreporting of incidents and a failure to address underlying issues that compromise patient safety (Hesselink et al., 2012). To enhance communication openness, Indonesian hospitals should implement structured communication training programs that emphasize the importance of speaking up about safety concerns without fear of reprisal (Leonard et al., 2004). Regular workshops and team-building exercises can foster an environment where staff feel empowered to share their insights and experiences, thereby enhancing the overall safety culture (Mannion et al., 2015; Weaver et al., 2013). The enhancement of safety culture in Indonesian hospitals necessitates a multifaceted approach. The implementation of structured communication training is of paramount importance, as it facilitates the normalization of open dialogue about safety issues and cultivates a culture where staff members feel secure in voicing concerns without fear of reprisals (Nuridah & Yodang, 2020). Periodic workshops focusing on team dynamics and communication skills can foster a collaborative environment where staff can engage in discussions about safety matters with

greater ease (Bilimoria et al., 2020). Furthermore, the implementation of formal feedback mechanisms allows for the anonymous reporting of incidents, thereby reducing concerns about retaliation and promoting transparency (Arbianti et al., 2023). The fostering of interdisciplinary collaboration through activities such as joint meetings ensures the alignment of diverse healthcare teams (Rosen et al., 2018). It is similarly crucial for hospital management to exemplify active and visible leadership engagement, as their participation communicates a commitment to fostering an open culture around patient safety (Mannion et al., 2015). The regular monitoring and evaluation of communication practices via surveys and feedback sessions allow for the identification of areas requiring improvement, facilitating the continuous refinement of strategies aimed at strengthening the overall safety culture and improving patient outcomes (Ahmed et al., 2023) . The integration of these recommendations would significantly enhance communication openness and bolster the safety cultures of Indonesian hospitals.

The correlation between teamwork within units ($\beta = 0.000$, $p = 0.482$) suggests that while there may be some degree of collaboration among team members, it lacks the depth required to significantly impact safety perceptions. Effective teamwork is of paramount importance in high-stakes environments such as healthcare, where coordinated efforts can prevent errors and improve patient outcomes. Research has demonstrated that the cultivation of a culture of teamwork can facilitate enhanced communication, a reduction in errors, and an improvement in patient satisfaction (Sacks et al., 2015). It is imperative that Indonesian hospitals enhance their teamwork capabilities through the implementation of interdisciplinary training programs that prioritize the development of collaborative problem-solving and conflict resolution skills. These programs should include simulation-based training, which allows staff from different disciplines to practice their skills in realistic scenarios. Cross-disciplinary rounds and joint meetings can help dissolve professional silos and foster a unified approach to patient care. Mentorship programs can further strengthen team dynamics. To enhance the safety culture in Indonesian hospitals, practical recommendations should be implemented, including the implementation of mentorship programs and the implementation of practical recommendations.

Firstly, interdisciplinary team training should prioritize collaboration among healthcare professionals through joint sessions that focus on communication and teamwork skills. This will facilitate a unified understanding of patient care (Huang et al., 2024). Secondly, the implementation of transparent communication protocols during the transfer of patients and the transition of care ensures that all members of the healthcare team are informed about the patient's needs and any changes in their condition. This mitigates the likelihood of errors (Rosen et al., 2018). Thirdly, it is of the utmost importance to foster a culture that does not impose punitive measures. Such an environment can be created by ensuring that staff feel safe in reporting errors without fear of retribution. This can be achieved through the implementation of anonymous reporting systems and regular discussions about lessons learned from incidents (Bagnasco et al., 2016). The implementation of regular safety audits will facilitate the identification of areas requiring improvement and reinforce adherence to established safety protocols (Alshyyab et al., 2019). It is of the utmost importance to encourage leadership engagement in the implementation of safety initiatives. It is imperative that hospital management actively engage in these initiatives and disseminate the significance of a safety culture to all staff levels (Mannion et al., 2015). The facilitation of feedback mechanisms enables staff to provide input on safety practices and suggest improvements (Leonard et al., 2004). Moreover, the advancement of continuous learning through the provision of ongoing education about patient safety practices via workshops and e-learning modules will ensure that staff are

kept updated on best practices (Buchan et al., 2015). By prioritizing these strategies, Indonesian hospitals can cultivate a more integrated team environment that not only improves safety perceptions but also enhances overall patient care quality.

The results indicate that while management plays a critical role in shaping the safety culture of an organization, the current practices may not be sufficiently robust to influence staff perceptions in a positive manner. Specifically, the dimension of supervisor/manager expectations and actions promoting patient safety ($\beta = 0.075$, $p = 0.323$) indicates a need for more robust practices to positively influence staff perceptions. Firstly, the fostering of communication openness can be achieved through the implementation of regular safety huddles, wherein staff at all levels can discuss safety concerns without fear of retribution. Such measures could be complemented by the implementation of anonymous reporting systems, which would encourage staff to voice their concerns regarding safety issues. (Kakemam et al., 2022) Secondly, the enhancement of teamwork within units requires the implementation of structured team-building exercises and interdisciplinary training programs that prioritize collaborative problem-solving and mutual respect among healthcare professionals. These initiatives can facilitate the dissolution of barriers between disparate roles and cultivate a unified dedication to patient safety (Rahmani et al., 2023; Rosen et al., 2018). Ultimately, the reinforcement of supervisory and managerial expectations necessitates the incorporation of patient safety metrics into the evaluation of leaders' performance, thereby ensuring their accountability for the nurturing of a culture of safety (Mannion et al., 2015; Wong et al., 2013). The provision of training for managers on efficacious leadership styles that promote safety, such as transformational leadership, can also prove advantageous (Sto¨cker et al., 2023). By adopting these strategies, Indonesian hospitals can establish a more resilient patient safety culture that prioritizes open communication, teamwork, and effective leadership.

The Learning Organization Theory, which is principally associated with Peter Senge's influential work "The Fifth Discipline: The Art and Practice of the Learning Organization", places significant emphasis on the critical role of continuous learning and adaptation in enhancing organizational performance and achieving long-term success. This theory posits that organizations fostering a culture of learning where employees are encouraged to share knowledge, learn from mistakes, and engage in collective problem-solving—are better positioned to improve safety practices and overall outcomes, particularly in healthcare settings. It is imperative to comprehend the causal mechanisms underlying significant predictors, such as organizational learning and continuous improvement, to enhance patient safety culture. According to Learning Organization Theory, continuous learning fosters collective awareness of safety issues, leading to enhanced communication and practices that ultimately benefit patient care (Murphy, 2016). However, while the theory provides a robust framework for understanding these dynamics, further exploration is necessary to identify specific pathways through which these mechanisms operate in Indonesian hospitals. Addressing these gaps could yield valuable insights into how healthcare organizations can cultivate a more effective safety culture, thereby ensuring better patient outcomes. Future research should also consider individual factors, such as burnout, which may influence safety perceptions among healthcare professionals.

Study Limitations

This study was conducted in a single hospital, and the response rate was low, which may be due to the method used for distributing the hard file. The researcher was obliged to meet with each respondent individually, and the respondents did not have time to complete the

questionnaire because it had too many questions. Additionally, the participants in this study were doctors and nurses therefore, the results only reflected the perceptions of professional health workers. There was need to assess the patient safety culture from other healthcare providers' perspectives in this hospital. Thus, the findings of this study cannot be generalized, and further studies to com- pare the results with other hospitals in the country are recommended. Furthermore, because our study was designed as a cross-sectional survey, we could not determine causality between study factors.

Conclusion

The analysis demonstrates that the most substantial dimension influencing safety perceptions in Indonesian hospitals is organizational learning and continuous improvement ($\beta = 0.434$, $p = 0.000$), underscoring the vital importance of sustained learning in fostering a robust safety culture. In contrast, the least significant dimension is teamwork within units ($\beta = 0.000$, $p = 0.482$), indicating that existing teamwork initiatives have not effectively impacted safety perceptions among staff. These findings have significant implications for national health policy, suggesting that policymakers should prioritize fostering a culture of organizational learning across healthcare institutions by developing standards for training programs focused on error reporting and feedback mechanisms. Furthermore, the lack of significance in teamwork indicates a need for policies that promote interdisciplinary collaboration among healthcare professionals. Future research could explore the role of individual factors, such as burnout, in shaping patient safety perceptions, as well as examine the longitudinal impacts of organizational learning initiatives on patient safety outcomes. Additionally, investigating barriers to effective teamwork through qualitative methods and exploring the relationship between leadership styles and safety perceptions could enhance management practices that support a positive safety culture in hospitals. These results support the integration of safety culture assessment into national hospital accreditation standards, ensuring that patient safety remains a top priority within healthcare systems.

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Conflict of Interest
The researchers declare that this paper has no conflicts of interest.

Author Contribution
All authors have contributed equally to the study's conceptualization, interpreting data, reviewing, and editing the manuscript.

Data Availability
Data can be provided upon request to the author.

Declarations Ethical Statement
The study followed the guidelines of the Declaration of Helsinki.

Informed Consent Statement
Informed consent was obtained from all persons involved in the study.

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