

Frontline nursing leadership and safety culture in psychiatric care: Evidence from Aceh Mental Health Hospital

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Abstract. *Background and aim of the work:* A safety culture enhances staff awareness, encourages reporting, and promotes improvement. First-line nursing managers greatly influence protocol adherence, communication, and error reporting. Improving their leadership is essential for increasing reporting and strengthening safety culture in inpatient settings. This study aims to evaluate the effectiveness of first-line nursing managers in fostering this culture at Aceh Mental Health Hospital. *Material and methods:* This research employs a quantitative, quasi-experimental design featuring a nonrandom pretest-posttest approach without a control group. The sample comprises 179 first-line managers from the Inpatient Ward of Aceh Mental Health Hospital, selected through a total sampling technique. Data collection unfolds across three stages: 1) Survey 1 conducted from August 5 to August 10, 2024; 2) a training session on enhancing the first-line nursing managers' role in fostering patient safety culture from August 27 to August 29, 2024, and 3) Survey 2 from September 23 to October 5, 2024. The Hospital Survey on Patient Safety Culture version 2.0 and pre-and post-test questions are utilized for data analysis, employing descriptive and inferential statistical tests, including parametric statistics and paired t-tests. *Results:* The research findings illustrate significant discrepancies in how first-line nursing managers perceive their roles concerning patient safety culture (p-value = 0.004). Moreover, notable variations exist in the effectiveness of these managers across various dimensions, including team cooperation, staff management, organizational learning, response to error, supervisory support, communicating about errors, communication openness, incident reporting, management support, and patient handover processes within the Mental Health Hospital of Aceh (all p-values < 0.005). *Conclusions:* The Aceh Mental Health Hospital has seen improvements in patient safety culture due to optimized first-line managers' roles. These leaders must understand management principles to reduce safety incidents. This culture encourages proactive incident reporting by nurses, fostering future patient safety initiatives. (www.actabiomedica.it).

Key words: nursing staff, patient safety, psychiatric hospitals, safety management, leadership

Introduction

The impact of healthcare quality on patient outcomes varies significantly across income levels, with substandard care being more prevalent in low- and middle-income countries (1). Evidence indicates that approximately 10% of hospitalized patients in these

countries develop infections during their hospital stay, compared to 7% in higher-income nations. Notably, while largely preventable through enhanced hygiene practices, improved infection control measures, and the judicious use of antimicrobials, hospital-acquired infections remain a critical concern. Concurrently, data reveal that 10% of patients in high-income countries

sustain harm during treatment (2,3). In contrast, estimates suggest that up to 25% of patients in low- and middle-income countries suffer harm, leading to 134 million adverse events annually associated with unsafe hospital care and contributing to approximately 2.6 million deaths each year (4). Addressing these challenges necessitates a paradigm shift in healthcare delivery that underscores the primacy of patient safety as an integral component of quality care. Establishing a robust patient safety culture within healthcare institutions and prioritizing collaborative teamwork, adequate staffing, organizational learning, effective error management protocols, and transparent communication regarding safety incidents is essential. The critical dimensions of this culture encompass teamwork, proactive leadership support, precise communication concerning errors, comprehensive reporting mechanisms, and efficient processes for patient handoffs (5). In Indonesia, various regulations to improve safety protocols have spurred a concerted effort to enhance patient safety and foster a safety culture within hospitals (6,7). A crucial aspect of this intensive initiative is the establishment of performance-based metrics to evaluate patient safety culture. Results from these evaluations inform the subsequent development of action plans and initiatives geared towards reinforcing a safety culture within healthcare settings (8). Implementing safety regulations falls predominantly on first-line nursing managers, who oversee clinical staff behaviors and ensure compliance with established unit safety standards (8). These managers' unique and multifaceted role in promoting a patient safety culture is critical (9). Nonetheless, while there are well-articulated theoretical models, a notable gap exists in the literature regarding practical strategies for translating the theory of patient safety culture into everyday healthcare management practices (10). Research consistently points to leadership as pivotal in establishing and nurturing a patient safety culture in hospital settings. Despite various theoretical frameworks addressing significant elements of this culture, a considerable knowledge deficit persists concerning the operational application of first-line nursing managers' leadership roles in advancing patient safety daily (11–13). The relevance of this research is underscored by findings from the National Patient Safety Reporting and Learning System

(in Indonesia= SP2KPN) (14). Notably, the reporting of patient safety incidents at the national level remained alarmingly low, with only 6% of hospitals submitting such reports, particularly evident in Aceh Province. In 2019, the Aceh Government General Hospital (RSUD) documented 6.029 patient safety incidents, starkly contrasting national reporting trends from SP2KPN. This disparity underlines a pressing issue regarding the unreported nature of hospital patient safety incidents, complicating the ability to accurately compare national data with actual incidents (14). The low incidence of reported safety events further hampers error identification and impedes further investigative efforts (15). A critical link exists between the knowledge and accountability of nursing staff engaged in patient safety teams and their reporting attitudes toward safety incidents (16). The literature identifies fear of repercussions as a predominant barrier to reporting and a concern echoed globally. Research indicates that in a sample of respondents with a deficient safety culture, a significant percentage encountered challenges when reporting safety incidents (17). The critical role of first-line nursing managers in fostering a patient safety culture is well-documented (9). These managers are pivotal in promoting open communication, encouraging error reporting, and facilitating organizational learning, all of which are essential components of a robust safety culture. Studies suggest that proactive efforts by managerial staff to bolster patient safety substantially increase the likelihood of nursing personnel reporting safety incidents (18). For instance, a study emphasizes the need for early intervention by nursing frontline managers in addressing workplace bullying, highlighting their role in promoting a safe and supportive work environment (19). Considering the above factors, this study seeks to clarify the multifaceted aspects of patient safety culture within hospital settings and to enhance the understanding of the pivotal roles that first-line nursing managers play in fostering a resilient patient safety culture through strategic interventions (20). By delineating practical strategies that first-line nursing managers can implement to nurture a culture of safety, this research intends to reconcile the disparity between theoretical frameworks and practical application (21). Ultimately, this study aims to evaluate the effectiveness of first-line nursing managers in

O1 ——— X ——— O2

O1	The first patient safety culture survey on nurses and <i>pre-test</i> training on understanding the role of nursing <i>first-line managers</i> in patient safety culture.
X	Intervention to optimize the role of <i>nursing first-line managers</i> in patient safety culture.
O2	The second patient safety culture survey on nurses and post-test training on the role of the nursing first-line manager in understanding the patient safety culture.

Figure 1. Nonrandom Pretest-Posttest Without Control Group Design.

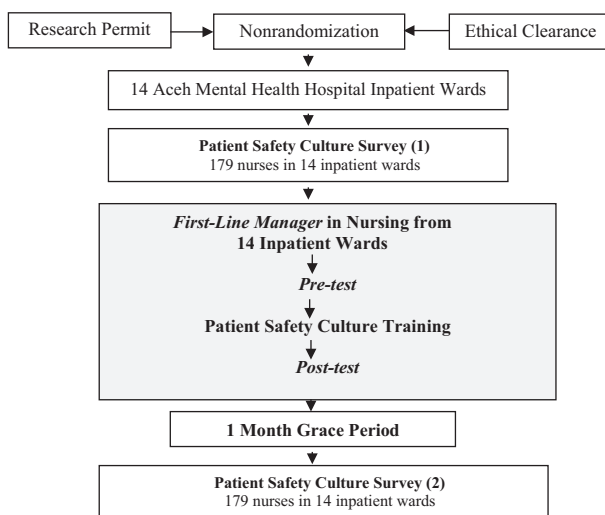


Figure 2. Research Stages.

fostering this culture at Aceh Mental Health Hospital to provide actionable insights that can guide policy development and training initiatives, thereby contributing to improving patient outcomes.

Material and methods

Study design

This study utilizes a quantitative research type, explicitly employing a quasi-experimental approach. It incorporates a nonrandomized pretest-posttest without a control group design, lacking a control group. Research studies characterize such designs as essential for evaluating interventions within real-world

contexts. These methodologies enable investigators to analyze outcome measures before and after the intervention, thereby assessing its efficacy. However, the lack of a control group restricts the ability to draw causal inferences (22). The structure of this study is illustrated in Figure 1 below:

The study design is illustrated in the subsequent Figure 2.

Population and sample

The study's population encompassed 179 first-line nursing professionals employed within the inpatient unit of Aceh Mental Health Hospital. A total population sampling method was employed, wherein the accessible population meeting specific criteria was selected for inclusion (23). This approach is convenient when the target population is relatively tiny and possesses distinct characteristics pertinent to the research objectives (24). Eligibility criteria for participation included active employment within the inpatient unit of Aceh Mental Health Hospital, absence of leave or educational commitments during the study period, and provision of informed consent through signed forms. Such criteria are essential in clinical research to ensure participant suitability and data integrity (24).

Data collection, instrument, and data analysis

Following the thorough acquisition of informed consent from all participants, the data collection process was meticulously initiated with the administration of Survey 1, which took place from August 5 to August 10, 2024. This survey was designed to gather

baseline data on current practices and perceptions of patient safety among nursing staff. Subsequently, from August 27 to August 29, 2024, a comprehensive and targeted training program was conducted. This program aimed to enhance and optimize the roles of first-line nursing managers in fostering a robust patient safety culture within the healthcare setting. The training focused on developing key leadership skills, effective communication strategies, and best practices for promoting patient safety among their teams. Survey 2 was administered between September 23 and October 5, 2024, to evaluate the impact of this intervention. This follow-up survey was designed to assess changes in participants' attitudes, knowledge, and practices regarding patient safety as a result of the training program, thereby providing valuable insights into the effectiveness of the intervention and areas for future improvement. The primary instrument for data collection was the Hospital Survey on Patient Safety Culture (HSOPS) Version 2.0, developed by the Agency for Healthcare Research and Quality (AHRQ). This tool evaluates various dimensions of patient safety culture within hospital settings (25). In addition to the HSOPS, pre-test, and post-test questionnaires were employed to measure the training intervention's effectiveness in optimizing first-line nursing managers' roles concerning patient safety culture (23). The study employed both descriptive and inferential statistical analyses. Descriptive analysis was utilized to characterize the respondent demographics and compute central tendency and dispersion measures related to patient safety culture metrics. Inferential analysis assessed variations in patient safety culture perceptions before and after the intervention. Depending on the data distribution, appropriate statistical tests were selected:

- A paired t-test was applied for normally distributed data to compare pre- and post-intervention scores.
- The Mann-Whitney U test was employed as a non-parametric alternative for data not adhering to a normal distribution.

This methodological approach ensured that the data analysis was congruent with the underlying

distributional characteristics, thereby enhancing the validity and reliability of the study's findings (26).

Ethics committee

This research has passed the Ethical Feasibility Test from the Nursing Research Ethics Committee, Faculty of Nursing, Syiah Kuala University, Research Code Number 113001280624, dated July 26, 2024, and has received a research permit from the Aceh Mental Hospital Number 800.2/3539 dated August 5, 2024.

Results

Characteristics of respondent

The characteristics of the study participants are delineated in Table 1 below:

Table 1 reveals the demographics of the study respondents, with 78.8% identifying as female and 41.9% aged 26 to 35. Educationally, 66.5% held professional nursing credentials. Furthermore, 61.5% were employed as civil servants, reflecting a trend towards public sector jobs. Regarding experience, 43.6% had five to ten years, and 84.4% held positions as team member nurses. Lastly, 62.0% worked 30 to 40 hours per week, demonstrating commitment to their roles.

Effectiveness of first-line nursing managers in the implementation of patient safety culture dimensions

Table 2 analyzes the effectiveness of first-line nursing managers regarding the cultural dimensions of patient safety as implemented in the inpatient wards of Aceh Mental Health Hospital.

Based on the findings presented in Table 2, it can be inferred that implementing all dimensions of patient safety culture within the Inpatient Ward of Aceh Mental Health Hospital exhibited significant changes before and after the training intervention aimed at enhancing the role of first-line nursing managers in this domain. The assessment revealed p-values of less than 0.05, indicating a statistically significant difference in executing all dimensions of patient safety culture following the intervention. Hence, there is a notable

Table 1. Characteristic Respondents

No	Characteristics	f	%
1	Gender		
	Female	141	78.8
	Male	38	21.2
2	Age (Years)		
	17-25 (Late Teenage)	28	15.6
	26-35 (Early Adult)	75	41.9
	36-45 (Late Adult)	48	26.8
	46-55 (Early Elderly)	21	11.8
	56-65 (Middle elderly)	7	3.9
3	Education		
	Specialist-1 Nursing	3	1.7
	Master of Nursing	5	2.8
	Nursing Profession	119	66.5
	Diploma-III Nursing	52	29.1
4	Employment Status		
	Civil Servant	110	61.5
	Government Employees with Work Agreements	67	37.4
	Contracted Employee	2	1.1
5	Working Period		
	<5 Years	45	25.1
	5-10 Years	78	43.6
	>10 Years	56	31.3
6	Nurses' positions:		
	Head of the Inpatient Wards	14	7.8
	Team Leaders	14	7.8
	Team Members	151	84.4
7	Hours Worked per Week:		
	Less than 30 hours per week	16	8.9
	30 to 40 hours per week	111	62.0
	More than 40 hours per week	52	29.1

difference in the application of patient safety culture dimensions in the Inpatient Ward of Aceh Mental Health Hospital due to the training intervention for first-line nursing managers.

Effectiveness of first-line nursing managers' role in the implementation of patient safety culture

The impact of first-line nursing managers on the implementation of patient safety culture within the Inpatient Ward of Aceh Mental Health Hospital is illustrated in Table 3 below.

According to the findings presented in Table 3, implementing a patient safety culture within the Aceh

Mental Health Hospital inpatient ward demonstrated significant changes before and after the intervention, which involved training designed to enhance the role of first-line nurse managers in implementing patient safety culture. The observed p-value of 0.000 indicates a statistically significant difference in implementing patient safety culture pre- and post-intervention at this facility.

Discussion

The optimization of first-line nursing managers' efficacy concerning patient safety culture within the

Table 2. The Effectiveness of the Role of Frontline Nursing Managers in Implementing Patient Safety Culture Dimensions in the Inpatient Ward of Aceh Mental Health Hospital (n= 179)

Patient Safety Culture Dimensions	n	Min- Max	Mean-SD	Mean Difference	95% Confidence Interval		p-value
					Lower	Upper	
Team Cooperation							
Survey 1	179	0-5	3.69±.636	0.173	-0.295	-0.051	0.006
Survey 2	179	3-5	3.87±.595				
Staff Management							
Survey 1	179	0-5	3.09±.615	0.313	-0.444	-0.182	0.000
Survey 2	179	3-5	3.43±.590				
Organizational Learning							
Survey 1	179	0-5	3.36±.641	0.162	-0.296	-0.028	0.018
Survey 2	179	3-5	3.53±.612				
Response To Errors							
Survey 1	179	2-5	3.16±.588	0.285	-0.400	-0.170	0.000
Survey 2	179	3-5	3.45±.572				
Support From Supervisors, Managers, Or Clinical Leaders							
Survey 1	179	0-5	3.43±.703	0.140	-0.267	-0.012	0.032
Survey 2	179	3-5	3.58±.598				
Communicating About Errors							
Survey 1	179	0-4	3.47±.698	0.184	-0.317	-0.051	0.007
Survey 2	179	2-5	3.66±.550				
Communication Openness							
Survey 1	179	0-4	3.20±.767	0.179	-0.328	-0.030	0.019
Survey 2	179	3-5	3.39±.584				
Reports Patient Safety Incidents							
Survey 1	179	0-4	3.40±.890	0.257	-0.398	-0.116	0.000
Survey 2	179	3-5	3.66±.508				
Hospital Management Support							
Survey 1	179	0-5	3.69±.638	0.184	-0.295	-0.073	0.001
Survey 2	179	3-5	3.72±.581				
Patient Handover							
Survey 1	179	2-5	3.18±.619	0.196	-0.325	-0.066	0.003
Survey 2	179	2-5	3.39±.602				

inpatient settings of the Aceh Mental Health Hospital has yielded significant outcomes. This initiative has notably heightened nurses' awareness regarding implementing a patient safety culture, with a statistically significant p-value of 0.000. The findings substantiate the multifaceted framework of patient safety culture,

which can guide policymakers, hospital management, and nursing leaders in fostering an increased consciousness among nursing personnel regarding patient safety protocols (27). The dimensions of this culture, as perceived by nursing staff at the hospital, encompass key elements, including team cooperation, staff

Table 3. The Effectiveness of the Role of First-line Nursing Managers on Patient Safety Culture in Its Application in the Psychiatric Ward of Aceh Hospital (n = 179)

Patient Safety Culture	n	Min-Max	Mean-SD	Mean Difference	95% Confidence Interval		p-value
					Lower	Upper	
Survey 1	179	0-4	3.28±.465	0.341	-0.436	-0.246	0.000
Survey 2	179	2-5	3.63±.497				

management, organizational learning, the response to errors, supervisory support for patient safety, communicating about errors, communication openness, incident reporting, hospital management support, and effective handoff practices (27,28). A well-established patient safety culture is predicated upon a collaborative environment that emphasizes mutual respect, robust leadership, and managerial support, collectively cultivating psychological safety for staff to learn from patient safety incidents and enhance strategies for preventing recurrence (13). A study revealed that among 119 respondents who exhibited a poor patient safety culture, 90 individuals (75.6%) encountered obstacles when reporting patient safety incidents, evidenced by a significant p-value of 0.000 (17). Establishing a patient safety culture is integral to guaranteeing patient safety and impacting individual performance in its practical execution. The low rates of reported patient safety incidents may suggest an underlying safety culture amongst nurses, who are anticipated to report such occurrences proactively (29). Cultivating a patient safety culture necessitates an atmosphere of mutual respect within the organization. Without adequate incident reporting systems and support from hospital and nursing management, opportunities for learning from incidents may be significantly impeded. The effectiveness of first-line nursing managers regarding the patient safety culture dimension of team cooperation illustrates notable changes pre- and post-intervention, evidenced by a p-value of 0.006. A team comprising two or more individuals collaborating interdependently towards a shared objective indicates the nursing staff's emotional engagement towards their organizational roles (30). This engagement signifies a commitment beyond mere monetary gain or promotional advancement; it embodies a shared dedication to the institution's objectives (31). Research employing

behavioral observation methodologies has elucidated communication dynamics, coordination patterns, leadership efficacy, and the roles of nursing management that foster effective teamwork (32). Furthermore, findings consistent with studies conducted in Saudi Arabia highlight that an overwhelming majority (85.8%) of nursing staff perceive teamwork positively, experiencing strong support from management and a culture that values unity, respect, and collaboration in pursuit of high-quality, safe, and efficient healthcare delivery. These relationships among nursing staff are characterized by openness, safety, mutual respect, and adaptability (33). Effective teams are characterized by mutual trust among members, who are assured that colleagues will uphold their commitments and prioritize collective interests (30). Regarding staff management dimensions, research findings indicate marked effectiveness in the first-line nursing manager's role concerning patient safety culture, with significant differences observed before and after interventions, as demonstrated by a p-value of 0.000. The critical nature of staff management in inherently labor-intensive healthcare organizations underscores its strategic importance. Adequate staffing must balance skilled professionals and additional support roles (31). While adequate nursing staffing is recognized as a strong predictor of patient safety, dominance analysis indicates that hospital and nursing management support is even more critical (34). Nursing personnel who experience mismatches in workload and staffing can adversely affect their job performance, compromising patient outcomes (32,33). An increased nurse-to-patient ratio elevates the risk of negligence (35), reinforcing findings from an investigation at the Regional General Hospital in Aceh Province, which identified that a nurse-to-patient ratio exceeding seven per shift correlated significantly with missed nursing care

(p -value = 0.000, odds ratio = 85.110) (36). Escalating workloads and elevated nurse-to-patient ratios are associated with growing risks of medication errors, complications, prolonged hospital stays, and compromised patient safety (37,38). Research findings reveal significant insights into the role of first-line nursing managers in fostering a patient safety culture within organizational learning, particularly in the psychiatric inpatient wards of Aceh. A marked difference was observed in pre- and post-intervention assessments, with a p -value of 0.018, indicating a statistically significant improvement. This underscores the vital nature of organizational learning as a continuous process encompassing both formal and informal educational modalities (32). Marilyn Anne Ray's theoretical framework offers a compelling comparison between the transformative changes within complex organizations and the creative process, thus urging nurses to advance and reinterpret daily clinical encounters to unearth more profound insights. This theoretical lens is paramount during organizational change (39). Ray's framework advocates recognizing nursing and hospital organizations as intricate, dynamic, relational, integral, and informational systems (40). To optimize patient safety outcomes, it is imperative for leaders and nursing managers, including first-line managers, to cultivate effective teamwork and establish an environment that prioritizes psychological safety. This will create a culture in which team members feel empowered to learn from incidents concerning patient safety (13). Notably, management efforts that continually enhance patient safety correlate significantly with increased reporting of safety incidents by nursing staff, which is evidenced by findings indicating that managers committed to safety practices are twice as likely to foster reporting behaviors among their teams (41). Moreover, Findings indicate that the first-line nursing manager's effectiveness concerning the response to error dimension revealed a significant difference before and after the intervention, with a p -value of 0.000. A robust safety culture is characterized as an environment free from fear, where staff members feel at ease reporting mistakes (42). Reducing the burden on nursing staff in error reporting necessitates implementing a reporting system that is practical, efficient, and maintains anonymity (43). Barriers hindering the reporting

of patient safety incidents frequently stem from a prevailing culture of blame, which fosters apprehension among nursing staff regarding personal accountability for errors. Ironically, those willing to report are often the nurses who share this accountability concern (16). A strong patient safety culture must encourage individuals to identify potential risks or actual failures without the specter of punitive actions from management (32). Fear is consistently documented as a substantial impediment to error reporting (44). Moreover, the dimension of support from supervisors, managers, or clinical leaders reveals that the effectiveness of first-line nursing managers concerning the support dimension from supervisors, managers, or clinical leaders demonstrated a significant difference post-intervention, with a p -value of 0.032. Enhancing patient safety requires considering staff suggestions, acknowledging adherence to safety protocols, and a proactive approach to patient safety concerns (45). Supervisors and clinical leaders are pivotal as planners and resources for nursing staff, tasked with providing conducive conditions for optimal team performance. Furthermore, these leaders are essential for effective team collaboration toward shared patient safety goals (46). Support from supervisors and clinical leaders must encompass confidentiality assurances for nurses reporting incidents (16). Allocating appropriate time and space for staff input, recognizing their contributions to patient safety, and offering praise and acknowledgment for their efforts are fundamental components of this support dynamic (47). The findings further illustrate that the role of first-line nursing managers in communicating about errors showed significant improvement post-intervention, with a p -value of 0.007. Effective error communication is a constructive facet of a patient safety culture that enhances safety measures (32). Cultivating a culture of openness and transparency in discussing incidents is vital to securing safety. Insufficient feedback post-incident reporting can discourage future reporting behaviors, leading to a reluctance amongst nurses to contribute to safety dialogue (16). Feedback from nursing managers regarding incident reports is integral to enhancing reporting practices (44). When nurses receive constructive feedback, engage in discussions to prevent recurrence, and feel empowered to voice their

concerns and suggestions, the perception of patient safety improves (41). This multidimensional perspective on patient safety culture reflects integrating learning, error response, supervisory support, and effective communication to promote a comprehensive and resilient approach to enhancing patient safety in nursing practice. This research provides valuable insights into the dimension of communication openness within the context of nursing management and its implications on patient safety culture in the Inpatient Ward of Aceh Mental Health Hospital. The findings indicate a statistically significant improvement in the effectiveness of the first-line nursing manager's role in enhancing communication openness, as evidenced by a p-value of 0.019 following a targeted intervention. A culture of openness is essential for fostering an environment where nursing staff can freely express concerns regarding patient safety. Previous research underscores the importance of open communication, demonstrating that nurses are more inclined to report potential risks when they perceive a supportive communication framework with their managers (16,47). Furthermore, organizations prioritizing patient safety are often characterized by a culture built on mutual trust, allowing for an environment where safety-related discussions can thrive (35). Marilyn Anne Ray's theory posits that care manifests not only through interpersonal relationships and compassion but also through the structured dynamics of formal bureaucracy, integrating these constructs into a professional meaning system (39). This perspective aligns well with the demonstrated significance of communication openness as a cornerstone for an effective patient safety culture. In addition to communication openness, this study also explored the dimension of reporting patient safety incidents. The findings revealed a notable difference between pre- and post-intervention, reflected in a p-value of 0.000. The low reporting rates for patient safety incidents present significant challenges in identifying errors and facilitating corrective actions (15). Insights from the literature indicate that nurses' knowledge, understanding, and sense of accountability are crucial in shaping their attitudes toward reporting safety incidents (16). Fear of consequences remains one of the most commonly cited barriers worldwide, underscoring the need for healthcare institutions to address local

barriers and implement effective solutions (48). This may involve transforming hospital management strategies to cultivate a robust patient safety culture (44). Understanding perceived barriers to error reporting from the nurses' perspective is instrumental in promoting a culture of openness and accountability, particularly regarding the cumbersome nature of incident reporting protocols (47). The study extends to the dimension of hospital management support, reporting a statistically significant difference in the effectiveness of first-line nursing managers in promoting patient safety culture, with a p-value of 0.001. This result underscores management's critical role in ensuring a supportive atmosphere for nursing staff. Leading and supporting nursing personnel are essential to enhancing patient safety, reflecting the hospital's commitment to establishing a robust healthcare delivery system (49). The successful execution of patient safety initiatives is inextricably linked to management support (50). Effective hospital and nursing management must foster a working climate prioritizing patient safety as a core value (32). Research supports that strong management backing significantly correlates with improved safety reporting practices among nursing staff (47). Such support encompasses resource allocation, supportive policies, and creating an environment conducive to implementing patient safety protocols (51). Lastly, the dimension of patient handover was examined, revealing a significant improvement in the effectiveness of nursing management post-intervention, with a p-value of 0.003. The handoff process is a vital aspect of patient safety culture, encompassing the efficient transfer of information and accountability in patient care delivery (52). Thorough, timely, and relevant documentation during handoffs can substantially improve patient safety (53). However, issues related to nursing documentation have been identified as problematic, including insufficient supervision and competency challenges among nursing staff (54). Thus, improving handoff procedures is essential, given their association with the quality of healthcare delivery and the risk of safety incidents (32). Effective communication and coordination among nursing staff during shift changes are critical to ensuring that vital patient information is accurately conveyed and that transitions in care are seamless (50). In conclusion, enhancing

communication openness, effectively reporting incidents, fostering strong management support, and improving handoff practices are paramount for cultivating a robust patient safety culture in nursing management. Healthcare institutions can significantly improve their patient safety outcomes by addressing these dimensions. This study has several limitations: 1) Lack of randomization: The quasi-experimental design without randomization and a control group may limit result generalizability and introduce selection bias. 2) Single-site focus: Conducted at one mental health hospital, the findings may not apply to other healthcare settings. 3) Focus on nursing staff: The study primarily includes nursing managers and staff, potentially missing contributions from other healthcare professionals in shaping patient safety culture.

Conclusion

The study emphasizes first-line nursing managers' crucial role in improving the patient safety culture at Aceh Mental Health Hospital. Results show significant advancements in team collaboration, personnel management, error reporting, and communication. Effective leadership, strong managerial support, and a culture of respect are essential for a psychologically safe environment, encouraging nursing staff to engage in patient safety initiatives. However, challenges like reporting barriers, workload concerns, and limited intervention duration remain, highlighting the need for further improvements. Continuous organizational commitment and strategic initiatives are critical for enhancing the culture of patient safety in nursing management.

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Authors' Contribution: HK systematically gathered data and developed the study's framework. AP, HK and YY provided expert editorial insights, conducted thorough reviews of the concept, and oversaw the article's development. DD played a significant role in drafting and advancing the idea. AP meticulously compiled the pertinent references and actively participated in the writing and editing of the paper. All authors collaboratively edited and revised the manuscript, ultimately reviewing and approving the final published version.

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