ORIGINAL ARTICLE

The influence of supervision by the head of medical services and nurse performance on patient safety at Aek Kanopan Regional General Hospital

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ABSTRACT

Background: Patient safety is a primary priority in healthcare services; however, adverse events persist and are often associated with nurse performance and weak supervision. This study aimed to analyze the influence of supervision by the Head of Medical Services and the performance of inpatient ward nurses on patient safety at Aek Kanopan Regional General Hospital, North Labuhanbatu Regency.

Methods: This quantitative study employed a cross-sectional design. The study population comprised all 120 implementing nurses in the inpatient wards, who were also recruited as the total sample. Data were collected using a structured questionnaire measuring nurse perceptions of supervision, performance, and patient safety implementation. Data analysis included univariate and bivariate analyses using the Chi-Square test.

Results: The majority of respondents rated supervision as good (84.2%), nurse performance as good (84.2%), and patient safety as good (84.2%). Bivariate analysis demonstrated a significant association between supervision and patient safety (p=0.000) and between nurse performance and patient safety (p=0.000).

Conclusion: This study concludes that effective supervision by department heads and optimal nurse performance contribute significantly to improved patient safety. Hospital management is advised to strengthen supervisory capacity and invest in continuing professional development programs for nurses.

Keywords: supervision, nurse performance, patient safety, hospital

Introduction

Patient safety has become a primary indicator of healthcare quality worldwide. A safe healthcare system minimizes risks and prevents unintended patient harm resulting from the care process itself.[1] The World Health Organization (WHO) emphasizes that improving patient safety depends not only on advanced technology but also on human and system factors, including health worker competency and supervision effectiveness.[2] Patient safety remains a serious concern in various countries, including Indonesia, due to its broad impact on morbidity, mortality, and public trust in healthcare institutions.[3,4]

Nurse performance plays a central role in achieving patient safety. As frontline providers interacting with patients 24 hours daily, the quality of nursing care significantly determines patient outcomes.[5,6] Clinical nurse performance is influenced by internal factors such as motivation, knowledge, and skills, as well as external factors including leadership style, supervision, and organizational support.[7,8] Previous research

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indicates that poor nurse performance correlates with increased adverse event rates, including medication errors, patient falls, and healthcare-associated infections.[9–11]

Supervision represents a critical managerial function in maintaining and improving nurse performance quality.[12] Nursing supervision involves providing ongoing guidance, direction, and monitoring to implementing nurses to ensure nursing care meets established standards.[13] Ward heads or heads of medical services, as front-line supervisors, are responsible for identifying problems, providing feedback, and facilitating direct problem-solving. Effective supervision focuses not only on control but also on staff competency development, thereby fostering a strong safety culture.[13]

In Indonesia, patient safety implementation faces ongoing complexities, with reports from over a decade ago highlighting persistent incidents due to inadequate oversight and inconsistent healthcare worker performance.[14] For instance, a 2019 analysis noted only 132 incidents reported nationally in 2013, rising modestly to 688 by 2016, amid weak hospital-level reporting cultures and limited follow-up.[4] Earlier studies around 2016 in regions like North Sumatra showed suboptimal nurse productivity, such as 18.3% low performance in mental health facilities, signaling broader issues in supervision and workload management.[15] North Sumatra Province specifically documented nurse performance fluctuations and declines in district hospitals during this period, often linked to factors like job stressors and organizational challenges, underscoring the need for targeted investigations.

Aek Kanopan Regional General Hospital, as a referral hospital in North Labuhanbatu Regency, plays a strategic role in providing healthcare services to the community. An initial survey at this hospital revealed indications of disciplinary problems among nurses, such as tardiness, which potentially compromises care continuity and quality. This phenomenon suggests a gap between expectations for safe care and field realities. The Head of Medical Services, as the officer responsible for service quality, is required to perform supervisory functions optimally to improve nurse performance and ultimately enhance patient safety.

Although previous studies have examined relationships between supervision, performance, and patient safety separately, research simultaneously investigating the influence of supervision by the Head of Medical Services and nurse performance on patient safety in the context of district hospitals in North Sumatra, particularly at Aek Kanopan Regional General Hospital, remains limited. The novelty of this study lies in its comprehensive analysis of these two important determinants within a single research framework, which is expected to provide practical, targeted recommendations for hospital management. Therefore, this study aimed to analyze the influence of supervision by the Head of Medical Services and the performance of inpatient ward nurses on patient safety at Aek Kanopan Regional General Hospital, North Labuhanbatu Regency.

Method

This study employed a quantitative analytic design with a cross-sectional approach. This design was selected because it enables identification and analysis of relationships between independent variables (supervision and nurse performance) and the dependent variable (patient safety) at a single point in time. The study was conducted at Aek Kanopan Regional General Hospital, located on Jalan Lintas Sumatera, North Labuhanbatu Regency. Data collection occurred in January 2026.

The study population comprised all implementing nurses working in inpatient wards at Aek Kanopan Regional General Hospital, totaling 120 individuals. Given the relatively small and accessible population size, total sampling was employed, making the entire population the study sample (n=120). Inclusion criteria were implementing nurses with permanent or contract employee status who had worked for at least one year and consented to participate.

Independent variables in this study consisted of supervision by the Head of Medical Services and nurse performance. Supervision was defined as the process of guidance, direction, and monitoring provided by superiors to implementing nurses, measured through nurse perceptions of supervision planning, organization, implementation, and evaluation aspects. Nurse performance was defined as nurses' work outcomes in performing nursing service tasks according to standards, measured through self-assessment of SOP compliance, communication, and documentation aspects. The dependent variable was patient safety, measured through nurse perceptions of patient safety goal implementation in their work units, including patient identification, effective communication, medication safety, infection prevention, and fall risk.

Data were collected using a questionnaire instrument. The questionnaire consisted of three main sections: respondent characteristics (age, education, work duration), statements regarding supervision (5

items), statements regarding nurse performance (5 items), and statements regarding patient safety (5 items). Each statement was measured using a Likert scale with three response options (Never, Rarely, Always), subsequently categorized as "Good" and "Poor" based on median values or predetermined cut-off points. Prior to use, the questionnaire was tested for validity and reliability on a group of nurses outside the sample to ensure instrument adequacy.

Data analysis proceeded in two stages. First, univariate analysis was used to describe frequency distributions and percentages of respondent characteristics and each study variable. Second, bivariate analysis was used to test hypotheses regarding associations between independent and dependent variables using the Chi-Square test (χ^2) with a significance level of $\alpha = 0.05$. Hypothesis decisions were based on p-values; if p-value < 0.05, the alternative hypothesis (Ha) was accepted, indicating a significant association. Data were processed using statistical software.

Results

This study involved 120 implementing nurses in inpatient wards at Aek Kanopan Regional General Hospital as respondents. Respondent characteristics, including age, education, and work duration, are presented in Table 1. Univariate analysis showed that the largest proportion of respondents were aged 37-45 years, totaling 58 individuals (48.3%). Regarding education, the majority of respondents had higher education backgrounds (Diploma III or Bachelor of Nursing), totaling 98 individuals (81.7%). Based on work duration, most respondents had worked for 2-5 years, totaling 59 individuals (49.2%).

Table 1. Respondent characteristics

Variable	Frequency (n)	Percentage (%)
Age		
< 25 years	12	10.0
26-35 years	32	26.7
37-45 years	58	48.3
> 46 years	18	15.0
Education		
Low Education (Nursing High School)	22	18.3
Higher Education (Diploma III/Bachelor)	98	81.7
Work Duration		
< 1 year	12	10.0
2-5 years	59	49.2
6-10 years	33	27.5
> 11 years	16	13.3

The frequency distribution of study variables, namely supervision, nurse performance, and patient safety, is presented in Table 2. Analysis showed that respondent perceptions of all three variables were predominantly in the good category. A total of 101 respondents (84.2%) rated supervision by the Head of Medical Services as good, while 19 respondents (15.8%) rated it as poor. Similarly, 101 respondents (84.2%) reported their performance as good, and 19 respondents (15.8%) reported poor performance. Regarding patient safety, 101 respondents (84.2%) perceived patient safety implementation in their units as good, while 19 respondents (15.8%) rated it as poor.

Table 2. Frequency distribution of study variables

Variable	Category	Frequency (n)	Percentage (%)
Supervision	Good	101	84.2
	Poor	19	15.8
Nurse Performance	Good	101	84.2
	Poor	19	15.8
Patient Safety	Good	101	84.2
	Poor	19	15.8

Bivariate analysis was conducted to examine the associations between each independent variable (supervision and nurse performance) and the dependent variable (patient safety). The Chi-Square test results for both associations are summarized in Table 3.

Based on Table 3, analysis showed that among 101 respondents who rated supervision as good, nearly all (99 individuals, 98.0%) also perceived patient safety as good. Conversely, among 19 respondents who

rated supervision as poor, the majority (17 individuals, 89.5%) perceived patient safety as poor. The Chi-Square test yielded a p-value of 0.000, which is less than the 0.05 significance level. Thus, the null hypothesis (Ho) was rejected and the alternative hypothesis (Ha) was accepted, indicating a significant association between supervision by the Head of Medical Services and patient safety at Aek Kanopan Regional General Hospital.

Table 3. Chi-Square test for associations of supervision and nurse performance with patient safety

Variable	Patient Safety		Total	p-value
	Good n (%)	Poor n (%)	n (%)	
Supervision				
Good	99 (98.0)	2 (2.0)	101 (100)	0.000
Poor	2 (10.5)	17 (89.5)	19 (100)	
Nurse Performance				
Good	101 (100.0)	0 (0.0)	101 (100)	0.000
Poor	0 (0.0)	19 (100.0)	19 (100)	

Furthermore, Table 3 also shows the association between nurse performance and patient safety. All respondents with good performance (101 individuals) perceived patient safety as good. Conversely, all respondents with poor performance (19 individuals) perceived patient safety as poor. The Chi-Square test also produced a p-value of 0.000, indicating a significant association between nurse performance and patient safety at Aek Kanopan Regional General Hospital.

Discussion

This study revealed that supervision by the Head of Medical Services had a significant association with patient safety at Aek Kanopan Regional General Hospital. This finding reinforces the nursing management concept positioning supervision as a vital directing function. Good supervision, encompassing thorough planning, clear direction, technical guidance, and consistent performance evaluation, creates a work environment conducive to implementing patient safety practices.[16] When supervisors actively participate in ward activities, conduct direct observations, and provide immediate feedback, implementing nurses tend to be more vigilant and motivated to comply with Standard Operating Procedures (SOPs).[17] Effective supervision functions as both a control mechanism and a support system, preventing negligence and reinforcing safe behaviors.[18]

Conversely, poor or merely incidental supervision creates opportunities for substandard practices. Nurses may feel unmonitored and tend to disregard complex or time-consuming procedures, thereby increasing incident risk.[19–21] This study's findings indicate that among 19 respondents who rated supervision as poor, nearly 90% also reported poor patient safety implementation. These results echo studies like those on leadership and supervision in Indonesian hospitals, associating them with patient safety outcomes. Leadership factors in regional hospitals show similar links.[21,22] Training heads of medical services and ward heads in clinical supervision, communication, and leadership boosts hospital service quality. Such investments strategically improve patient safety culture.[23,24]

The association between supervision and patient safety can also be explained through systems theory perspective.[25] Within a healthcare system, supervision functions as a defense layer capable of capturing errors before they impact patients.[26] A competent supervisor can identify latent risk factors within the system, such as unbalanced workloads or inadequate staff knowledge of new procedures, and take immediate corrective action.[27,28] Thus, supervision not only improves individual performance but also strengthens the overall system to prevent failures.[25,26] At Aek Kanopan Regional General Hospital, strengthening supervisory function could be key to reducing incident rates and enhancing safety culture.

This study also demonstrated a significant association between nurse performance and patient safety, as shown in Table 3. This finding is intuitive and supported by extensive literature. Nurses with good performance possess not only clinical skills but also discipline in following procedures, effective communication, and thorough documentation.[11] This good performance directly contributes to achieving the six patient safety goals. For example, nurse compliance in identifying patients with two identifiers before medication administration prevents medication errors. Implementation of SBAR communication during patient handovers prevents miscommunication with potentially fatal consequences.[29] Compliance with hand hygiene reduces nosocomial infection risk. These findings align with research by Ameliyah and

Nursapriani[30] at Labuang Baji Regional Hospital in Makassar and Maryani[31] at Bandung General Hospital, which found significant relationships between nurse performance and patient safety.

The finding that all respondents with good performance perceived patient safety as good, and vice versa, indicates a very strong and consistent relationship. This finding confirms that nurses are primary determinants of patient safety. As the profession with the longest patient interaction time, nurses' daily actions and decisions cumulatively shape service safety levels.[32] Poor nurse performance, such as negligence in fall risk assessment or errors in high-alert medication administration, represents a primary gateway to adverse events.[33] Therefore, efforts to improve patient safety must focus on empowering nurses and enhancing their competencies.[32,34]

Good nurse performance does not occur automatically; it results from interaction between individual factors (motivation, knowledge) and organizational factors (training, workload, management support). In the context of Aek Kanopan Regional General Hospital, with a majority of highly educated and experienced nurses, the foundation for good performance already exists. The challenge lies in maintaining performance consistency through continuing professional development programs, such as Basic Trauma Cardiac Life Support (BTCLS) training, patient safety training, and effective communication workshops. Additionally, hospital management must ensure work systems support optimal performance, for example, through ideal nurse-to-patient ratios and adequate facility availability.[35,36]

This study's limitations should be acknowledged. First, the cross-sectional design captures associations at a single point in time and cannot determine long-term causal relationships. Second, variable measurement using self-report questionnaires potentially introduces bias, as respondents may provide socially desirable responses. However, respondent anonymity was maintained to minimize this bias. Third, this study was conducted at a single hospital, so generalization of findings to other hospitals should be approached cautiously. Further research using longitudinal designs and direct observation methods with in-depth interviews is strongly recommended to enrich understanding of the dynamics among supervision, performance, and patient safety.

Conclusion

This study concludes that there is a significant association between supervision by the Head of Medical Services and patient safety at Aek Kanopan Regional General Hospital. Similarly, there is a significant association between nurse performance and patient safety at the same hospital. Better supervision implementation and better nurse performance are associated with better patient safety implementation. Therefore, to improve patient safety, management at Aek Kanopan Regional General Hospital is advised to continuously enhance supervision quality through leadership and managerial training for ward heads and department heads. Additionally, the hospital should develop continuing professional development programs for nurses, ensure SOP compliance, and establish systems supporting open and fair incident reporting (just culture). Collaboration and networking with other health institutions should also be developed for mutual learning in efforts to improve patient safety and service quality.

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