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Original Article

DETERMINATION OF NURSES' KNOWLEDGE IN INITIAL HANDLING OF EMERGENCY PATIENTS IN THE CRITICAL UNIT OF SUMBAWA REGIONAL GENERAL HOSPITAL

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ABSTRACT

Background: Rapid and accurate initial management of emergency patients is crucial to prevent mortality and disability, especially in critical care units. However, variations in nurses' knowledge and preparedness—often influenced by education, experience, and training—highlight the need to assess factors affecting their competence in emergency management.
Objectives: This study aimed to assess nurses' knowledge of initial emergency management and identify factors associated with their knowledge levels in the critical care units of Sumbawa Regional General Hospital.
Methods: Analytical descriptive (cross-sectional) quantitative study conducted in June 2025. The target population comprised nurses working in the Emergency Room, ICU, NICU, and Surgical unit (N = 60). A total of 52 nurses participated (response rate 86.7%) and were included using convenience (accidental) sampling. Data were collected using a structured questionnaire assessing knowledge of initial emergency management. Knowledge was categorized as Good (≥75%), Sufficient (50–74%), and Lacking (<50%) based on the total score. Analysis included descriptive statistics and bivariate analysis using the Chi-square test ($\alpha = 0.05$).
Results: Of 52 respondents, 44.2% (n = 23) demonstrated Good knowledge, 25.0% (n = 13) Sufficient knowledge, and 30.8% (n = 16) lacked knowledge. Bivariate analysis showed significant associations between knowledge level and educational level ($p = 0.041$), length of work ($p = 0.035$), and previous emergency training ($p < 0.001$).
Conclusion: Knowledge of initial emergency management among nurses at Sumbawa General Hospital is heterogeneous, with gaps associated with lower formal education, shorter work experience, and lack of training. We recommend regular, simulation-based, and blended BLS/PPGD training, periodic competence assessments, and hospital-level policies to ensure mandatory life-support certification for critical care nurses.

Keywords: Basic Life Support, Emergency Nursing, Nurse Knowledge, Training, Critical Care.

INTRODUCTION

Nursing care is a form of professional service based on nursing science and technology, comprehensively encompassing bio-psycho-social and spiritual aspects. In the context of emergencies, nurses play a vital role in providing rapid and appropriate initial intervention to prevent death or permanent disability. Nurses are frontline responders in hospital emergencies;

their knowledge and competence in the initial management of critically ill patients strongly influence patient outcomes. According to the World Health Organization (WHO), the number of emergency patients is increasing globally, with an estimated 6.5 million new cases annually and a potential 15 million deaths due to accidents. In Indonesia, the prevalence of emergency cases due to accidents reaches 100–200 cases per 100,000 people per year. Lack of knowledge about first aid is one factor that worsens the condition of patients in critical phases.

Effective initial treatment in emergencies depends heavily on speed and accuracy of action. The main principle of Emergency First Aid (PPGD) is "Time Saving is Life Saving," emphasizing the importance of efficient action within minutes. Basic PPGD concepts, such as A-B-C-D (Airway, Breathing, Circulation, Disability), have been introduced to the general public, but the mastery of these concepts by healthcare workers, particularly nurses, still requires further review. Despite global efforts to standardize resuscitation training (e.g., AHA guidelines and updates), many studies report persistent knowledge and skill gaps among nursing staff, especially in resource-constrained hospitals.

Previous research has shown that nurses' knowledge of resuscitation and initial emergency care is still relatively low (Iswanto, 2014). This raises concerns about the effectiveness of nursing services in hospital critical care units. This study focuses on Sumbawa General Hospital because there is limited local data from this region and because single-center assessments can guide targeted educational interventions for hospital policy and staff development.

While prior national studies and small single-centre reports have described nurses' BLS awareness, there is a scarcity of up-to-date data from eastern Indonesia reflecting the combined influence of formal education, length of service, and prior training on nurses' first-response knowledge. Addressing this gap will support tailored continuing education and policy at Sumbawa Regional Hospital.

Based on this background, this study aims to identify factors influencing nurses' To contextualize our recommendations, recent evidence shows that structured BLS training (including blended and simulation-based approaches) improves knowledge retention and practical performance; focused and repeated educational strategies increase long-term retention and readiness for real-life resuscitation events. To contextualize our recommendations, recent evidence shows that structured BLS training (including blended and simulation-based approaches) improves knowledge retention and practical performance; focused and repeated educational strategies increase long-term retention and readiness for real-life resuscitation events.

METHODS

Study Design

This study employed an analytical descriptive design with a cross-sectional approach.

Settings

The study was conducted in the critical care units, including the Emergency Room, Intensive Care Unit, Neonatal Intensive Care Unit, and Surgical Unit, in June 2025.

Research Subject

The research subjects were nurses working in the critical care units, including the Emergency Room, Intensive Care Unit, Neonatal Intensive Care Unit, and Surgical Unit, with

a total population of 60 nurses. A sample of 52 nurses was obtained using a convenience (accidental) sampling technique, and inclusion criteria consisted of nurses who were on duty and willing to participate during the data collection period.

Instruments

The research instrument used in this study was a structured questionnaire developed to assess nurses' knowledge of initial emergency management. The questionnaire consisted of items covering key components of emergency care, including Airway, Breathing, Circulation, and Disability (A–B–C–D) management, as well as Basic Life Support (BLS) principles and the use of defibrillators. Each item was designed to measure cognitive understanding of theoretical and procedural aspects of first response in emergencies.

Before data collection, the questionnaire was tested for validity and reliability to ensure its accuracy and consistency. The validity test was performed through expert judgment by nursing lecturers and emergency nursing practitioners, while the reliability test used statistical analysis with Cronbach's alpha, indicating that the instrument was reliable for use. The total score obtained from the questionnaire was then categorized into three levels of knowledge: Good (≥75%), Sufficient (50–74%), and Lacking (<50%).

Data Collection

Data collection was carried out through direct distribution of the validated questionnaire to nurses who met the inclusion criteria. Respondents were briefed about the study objectives, procedures, and confidentiality before completing the questionnaire independently during their work shifts. Primary data were obtained from the participants' responses to the knowledge assessment, while secondary data were gathered from hospital documentation and relevant literature to support analysis. All data collection procedures were conducted after obtaining ethical approval and written informed consent from each respondent.

Data Analysis

Data were analyzed using descriptive and inferential statistics. Descriptive analysis was applied to summarize respondents' characteristics and levels of knowledge, presented in frequencies and percentages. Inferential analysis using the Chi-square test was performed to identify associations between knowledge levels and independent variables, including educational level, length of work, and training history, with a significance level set at $\alpha = 0.05$.

Ethical Considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Ethical approval was obtained from the Ethics Committee of the College of Health Science of Husada Jombang. Prior to participation, all respondents received a clear explanation of the study's objectives and procedures, and written informed consent was obtained to ensure voluntary participation and confidentiality of personal data.

RESULTS

This study, conducted in June 2025 at Sumbawa General Hospital, aimed to determine nurses' knowledge of initial emergency care in the critical care unit. Fifty-two nurses working in the emergency room, intensive care unit, neonatal intensive care unit, and surgical unit were selected through accidental sampling. Univariate and bivariate data analysis was performed using the Chi-square test with a 5% significance level ($\alpha = 0.05$).

Characteristics of Respondents based on the Age, Workspace, Educational Level, Length of Work, Training History, and Level of Knowledge

Table 1. Distribution of Frequency of Respondents based on the Age, Workspace, Educational Level, Length of Work, Training History, and Level of Knowledge on June 2025 in Sumbawa General Hospital (n = 52).

Characteristics of Respondents	Frequency	Percentage
Age		
20-28	26	50.0
29-34	12	23.1
> 34	14	26.9
Total	**52**	**100.0**
Workspace		
Emergency room	16	30.8
NICU	9	17.3
Surgery	14	26.9
ICU	13	25.0
Total	**52**	**100.0**
Educational Level		
SPK	5	9.6
Diploma of Nursing	44	84.6
Bachelor of Nursing	3	5.8
Total	**52**	**100.0**
Length of Work		
6 months - 5 years	11	21.2
6 - 10 years	19	36.5
> 10 years	22	42.3
Total	52	100.0
Training History		
Ever	23	44.2
Never	29	55.8
Total	**52**	**100.0**
Level of Knowledge		
Good Knowledge	23	44.2
Sufficient Knowledge	13	25.0
Lacking Knowledge	16	30.8
Total	**52**	**100.0**

Sources: Primary data from the questionnaire, 2025.

The study involved 52 respondents with diverse characteristics. Most respondents were aged 20–28 years (50.0%), followed by those aged 29-34 years (23.1%) and over 34 years (26.9%). Regarding workplace distribution, 30.8% worked in the emergency room, 26.9% in surgery, 25.0% in the ICU, and 17.3% in the NICU. In terms of education, the majority held a

Diploma in Nursing (84.6%), while 9.6% had completed SPK, and only 5.8% held a Bachelor's degree in Nursing. Based on work experience, 42.3% had been working for more than 10 years, 36.5% for 6–10 years, and 21.2% for 6 months to 5 years. Training history showed that 44.2% had attended training, while 55.8% had not. Finally, the level of knowledge revealed that 44.2% demonstrated good knowledge, 25.0% had sufficient knowledge, and 30.8% showed lacking knowledge.

Analysis of Factors Influencing Knowledge in Initial Handling of Emergency Patients

Table 2. Analysis of Factors Influencing Knowledge in Initial Handling of Emergency Patients in June 2025 in Sumbawa General Hospital (n = 52).

Variables	*p*-value
Educational Level	$p = 0.041$
Length of Work	$p = 0.035$
Training History	$p < 0.001$

Table 2 presents the bivariate analysis (Chi-square). Educational level (p = 0.041), length of work (p = 0.035), and training history (p < 0.001) were significantly associated with nurses' knowledge level.

DISCUSSION

This study found that educational level, length of work, and prior emergency training was significantly associated with nurses' knowledge of initial emergency management. These findings align with international evidence showing that structured BLS and resuscitation training improve theoretical knowledge and practical skills and that higher formal education and longer clinical experience contribute to better knowledge and confidence. For example, national and international studies have documented weak long-term retention of BLS knowledge without periodic retraining and superior outcomes when blended or simulation-based training approaches are used.

Education is the primary foundation for developing nursing competency, including in emergency management. The study results showed a significant relationship between education level and nurses' knowledge of first aid for emergency patients (p = 0.041). Respondents with a higher education (Bachelor's degree) demonstrated a higher level of knowledge than those with vocational education.

This finding aligns with Notoatmodjo's (2014) opinion, which states that knowledge is a key determinant in shaping professional behavior. In the emergency context, mastery of theory and practice is crucial for successful intervention, given that a delay of 3–8 minutes can lead to clinical death due to nervous and cardiovascular system failure (Sterz, 2014). Therefore, increasing education levels and strengthening the emergency curriculum are strategic steps in improving the quality of nursing services.

Length of service reflects the level of experience and exposure to clinical situations, including emergency cases. The analysis showed a significant relationship between length of

service and nurses' knowledge level (p = 0.035). Respondents with more than 10 years of service tended to have better knowledge than those with less than 3 years.

This supports the theory of Ranupandoyo and Saud (2005), which states that the longer a person works in an organization, the greater their proficiency and accuracy in carrying out their duties. Work experience enables nurses to develop clinical intuition, technical skills, and rapid decision-making in critical situations. However, work experience needs to be supported by ongoing training to ensure knowledge remains relevant to developments in nursing science and technology.

Training is a form of non-formal education that focuses on improving practical skills in a short period of time. The results showed that training had a very significant impact on nurses' knowledge of emergency first aid (p = 0.000). Respondents who had participated in training such as Basic Life Support (BLS) and Basic Trauma Cardiac Life Support (BTCLS) demonstrated a higher level of knowledge than those who had not.

Unfortunately, only a small proportion of respondents had participated in emergency training, resulting in a low overall level of knowledge. This situation risks compromising the quality of care and endangering patient safety. Therefore, hospital management needs to initiate regular training programs and emergency competency certification for all nursing staff.

By comparison, in Australia, emergency education has been implemented from an early age. As many as 86% of elementary school children have received Cardiopulmonary Resuscitation (CPR) certification and can operate an Automatic External Defibrillator (AED). This demonstrates that emergency literacy can be instilled from an early age as part of a public safety culture.

The very strong association between prior training and knowledge ($p < 0.001$) supports implementing mandatory, recurrent BLS/PPGD training (including hands-on and simulation components) for all critical care nurses. Recent studies show that blended learning and spaced e-learning strategies improve knowledge acquisition and retention. Simulation-based education has also been demonstrated to improve both knowledge and skills in emergency scenarios, particularly when combined with structured debriefing.

The association with formal education and years of service suggests that investment in continuing professional development and opportunities for nurses to advance academically could yield improvements in emergency preparedness. However, on-the-job training can mitigate knowledge gaps among nurses with shorter service or lower initial formal education.

In contrast, interviews at Sumbawa Regional Hospital revealed that defibrillator use remains limited and can only be operated by trained healthcare workers. This underscores the importance of technical training and strengthening support systems in critical hospital units.

This was a single-center study with convenience (accidental) sampling, which limits generalizability. The self-administered questionnaire measures knowledge but not observed clinical performance; therefore, measured knowledge may not fully translate into resuscitation competence.

CONCLUSION

Nurses' knowledge of initial emergency management varied, with significant associations found between knowledge level and education, work experience, and prior emergency training. Continuous education, regular simulation-based BLS/PPGD training, and

certification policies are essential to enhance nurses' preparedness and competence in critical care settings.

SUGGESTION

It is recommended that hospitals implement mandatory and periodic Basic Life Support (BLS) or Emergency First Aid (PPGD) training for all nurses in critical care units. Additionally, regular competency assessments, simulation-based learning, and certification or recertification programs should be integrated into hospital policy to ensure continuous improvement in nurses' emergency response readiness.

LIMITATIONS

This study was limited by its single-center design and the use of a convenience (accidental) sampling technique, which may affect the generalizability of the findings. In addition, the assessment focused only on knowledge through a self-administered questionnaire and did not measure actual clinical performance or skills in real emergencies.

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