

The Relationship Between Knowledge And Nurses' Competence In Conducting Secondary Surveys For Trauma Cases In The Emergency Department Of Bhayangkara Hospital Makassar

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ABSTRACT

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Trauma is one of the leading causes of death worldwide, with the World Health Organization (WHO) estimating that approximately 4.4 million people die each year due to trauma. The Emergency Department (ED) serves as a critical point in trauma management, where timely and effective care can significantly impact patient outcomes. Nurses' competence in conducting secondary surveys for trauma cases is essential for identifying injuries that may not be immediately apparent during the initial assessment. This process allows for the detection of secondary injuries that could pose significant risks if left untreated, ultimately improving patient safety and the overall quality of trauma care. This study aims to examine the relationship between knowledge and nurses' competence in conducting secondary surveys for trauma cases in the ED of Bhayangkara Hospital Makassar. It employs a quantitative research design with a cross-sectional approach, involving 21 respondents selected using a total sampling technique. Data were collected through validated and reliability-tested questionnaires, complemented by observation sheets. The study was conducted at Bhayangkara Hospital Makassar in December 2024. The findings indicate that the higher the level of ED nurses' knowledge regarding the secondary survey, the better their competence in managing trauma cases. A p-value of 0.005 ($p < 0.05$) was obtained, indicating a significant relationship between knowledge and competence. To enhance nurses' competence, continuous training and adequate education are crucial in improving their knowledge and skills in trauma management within the ED. Enhancing nurses' competence is expected to reduce the risk of complications and accelerate patient recovery by continuously updating their knowledge and skills in emergency care. This study concludes that there is a significant relationship between knowledge and nurses' competence in conducting secondary surveys for trauma cases in the Emergency Department of Bhayangkara Hospital Makassar.

Keywords: *Secondary Survey; Knowledge; Competence; Trauma*

INTRODUCTION

According to the World Health Organization (WHO), an estimated 4.4 million people worldwide are expected to die from trauma in 2024, accounting for nearly 8% of all deaths. Approximately 90% of trauma-related deaths occur in developing countries (World Health Organization, 2024).

Indonesia, as a developing country, has a significant trauma burden. According to data from the Indonesian Ministry of Health (Kemenkes RI) in 2018, 9.2% of the

population experienced trauma. Specifically, head trauma—affecting the eyes, nose, ears, mouth, face, and neck—was reported in 92,976 individuals. In South Sulawesi, 10.96% of the population was recorded as having experienced trauma (Indonesian Ministry of Health, 2019).

The leading causes of trauma-related deaths in emergency departments (ED) are motor vehicle accidents, falls, and drowning (Abdullah et al., 2022). The ED plays a crucial role as the primary entry point for patients requiring urgent and emergency care. The number and severity of cases in the ED are unpredictable, as emergencies and disasters can occur anytime, anywhere, and affect anyone. Due to the unpredictable nature of these incidents, emergency care demands rapid and accurate response (Firdaus & Meirinawati, 2019).

At Bhayangkara Hospital Makassar, trauma cases have been increasing over the years, with 340 cases recorded in 2020, 640 cases in 2021, and 677 cases in 2022. The high incidence of medical emergencies underscores the need for all ED medical teams to possess strong skills and competencies in emergency care, particularly in conducting primary and secondary surveys for trauma patients. According to Melnyk, dkk (2014), knowledge is a critical component of competency, supporting healthcare professionals in delivering high-quality care.

Previous studies have explored nurses' competencies in performing primary surveys, but research on secondary surveys—which provide a more comprehensive assessment to prevent mortality and disability in trauma cases—remains limited. A study by Nurbiantoro dkk, (2021) identified a significant relationship between nurses' knowledge and their triage skills. However, this only provides a general overview of emergency services during the initial patient assessment. In contrast, this study focuses on nurses' competencies related to secondary surveys in trauma cases.

Preliminary observations at Bhayangkara Hospital Makassar indicate that secondary surveys—which should be integrated with primary surveys—are often underperformed and receive less focus from nurses. There is a tendency to view secondary surveys as optional follow-up assessments, without strict time limitations following the primary survey. This approach may lead to deterioration in trauma patients' conditions while in the ED.

Since primary and secondary surveys are inseparable components of trauma emergency care, this study aims to examine the relationship between nurses' knowledge

and their competency in conducting secondary surveys for trauma cases in the ED at Bhayangkara Hospital Makassar.

MATERIALS AND METHODS

This study is a quantitative research using a correlational design with a cross-sectional approach. The study will be conducted at Bhayangkara Hospital Makassar in December 2024. The population consists of all nurses working at Bhayangkara Hospital Makassar, totaling 21 respondents.

The sampling method used in this study is total sampling, meaning that the sample size is equal to the total population, ensuring that no respondents are excluded. This method was chosen because the population size is fewer than 100, allowing the entire population to be included in the study (Darwin dkk., 2021).

Nurses will complete a knowledge questionnaire consisting of 20 questions, while the researcher will observe their performance in conducting secondary surveys on trauma cases. The measurements will use an ordinal scale with a scoring mechanism: a correct answer in the questionnaire is given a score of 1, while an incorrect answer receives a score of 0. The results will then be categorized into sufficient knowledge and insufficient knowledge.

For competency assessment, scoring is conducted based on actions performed during the secondary survey: a score of 1 is assigned for correctly performed actions, while a score of 0 is given for actions not performed. The results will then be categorized into sufficient competency and insufficient competency.

Data collection will involve a questionnaire to assess nurses' knowledge of the secondary survey in trauma cases, complemented by an observation sheet to evaluate their competency in performing the secondary survey. The research instruments, including the questionnaire and competency assessment observation sheet, were developed by the researcher.

The validity of the questionnaire was tested, showing that the calculated r-value was greater than the table r-value at a significance level of 0.1. Additionally, a reliability test was conducted using Cronbach's alpha, with an acceptable reliability range of 0.61 – 0.80.

Below is the table of instrument components and specifications used in this study:

Table 1. Dimension Grid

Dimensi	Question Number
Definition of Secondary Survey	1
Trauma Criteria	2, 11
<i>Secondary Survey</i>	3,4,5,6,7,8,9,10,12,13, 14,15,16,17,18,19,20

The data management process was conducted using software such as Microsoft Excel and SPSS version 24. A univariate analysis was performed for variables including gender, age, education, training, and length of service of nurses in the Emergency Department (ED). A bivariate analysis was conducted to examine the relationship between knowledge and nurses' competency in performing secondary surveys for trauma cases using the chi-square test. This study has undergone ethical feasibility assessment and received ethical approval with approval number **C.002/KEPK/FKIK/I/2023**.

RESULTS

Based on the results from the questionnaire and observation sheets, the collected data were analyzed using univariate and bivariate analysis and are presented in the following research findings.

Tabel 2. Responden Characteristics (n=21)

	Frekuensi (n)	Percentage (%)
Gender		
Female	8	28,6
Male	13	71,4
Age (Years)		
26-35	15	71,4
36-45	6	28,6
Highest Education		
Diploma (D3)	3	14,3
Bachelor's (S1)	5	23,8
Nursing Profession (Ners)	12	57,1
Master's (S2)	1	4,8
Training Experience		
Yes	18	85,7
No	3	14,3
Work Experience		
<10 years	9	42,9
>10 years	12	57,1

Based on the results from the questionnaire and observation sheets, the respondent characteristics are as follows: The majority of respondents were male (13 respondents, 61.9%). The dominant age group was young adults (26–35 years old), with 15 respondents (71.4%). In terms of education level, most respondents held a Nursing Profession (Ners) degree, accounting for 12 respondents (57.1%). Additionally, 18 respondents (85.7%) had previously attended training, and the majority had more than 10 years of work experience (12 respondents, 57.1%).

Table 3. Nurses' Knowledge of Secondary Survey in Trauma Cases at the Emergency Department of Bhayangkara Hospital Makassar (n=21)

Knowledge	Frekuensi(n)	Percentage (%)
Poor	8	38,1
Good	13	61,9

Based on Table 3, the findings indicate that 8 respondents (38.1%) had poor knowledge, while 13 respondents (61.9%) had good knowledge regarding the secondary survey in trauma cases at the Emergency Department of Bhayangkara Hospital Makassar. Descriptively, these results suggest that the majority of nurses possess good knowledge of the secondary survey.

Table 4. Nurses' Competency in Secondary Survey for Trauma Cases at the Emergency Department of Bhayangkara Hospital Makassar (n=21)

Competency	Frekuensi (n)	Percentage (%)
Poor	4	19
Good	17	81

Based on Table 4, the results indicate that 4 respondents (19%) had poor competency, while 17 respondents (81%) demonstrated good competency in conducting the secondary survey for trauma cases at the Emergency Department of Bhayangkara Hospital Makassar.

Table 5. Relationship Between Knowledge and Nurses' Competency in Secondary Survey for Trauma Cases at the Emergency Department of Bhayangkara Hospital Makassar (n=21)

Knowledge	Competency		<i>p Value</i>
	Good (n=21) (%)	Poor (n=21) (%)	
Poor	4 (19)	4 (19)	0,005
Good	13 (62)	0 (0)	

Based on the table, the cross-tabulation between knowledge and competency using the Chi-Square statistical test resulted in a p-value of 0.005, which is less than 0.05. This indicates a significant relationship between knowledge and nurses' competency in performing the secondary survey for trauma cases. Therefore, Ha (alternative hypothesis) is accepted, and Ho (null hypothesis) is rejected.

DISCUSSION

Nurses' Knowledge of Secondary Survey in Trauma Cases at the Emergency Department of Bhayangkara Hospital Makassar

The findings of this study indicate that nurses' knowledge of the secondary survey in trauma cases at the Emergency Department of Bhayangkara Hospital Makassar falls into the good category, with 11 respondents (52.4%) demonstrating a high level of knowledge.

The largest proportion of nurses with good knowledge belonged to the young adult age group (26–35 years old), with 10 respondents (48%). Nurses in this age group typically have a higher motivation to participate in training and continuous education, as they are in the early stages of their careers and strive to enhance their skills and knowledge. Meanwhile, older nurses tend to focus on maintaining their existing knowledge as they have reached the peak of their careers. According to Manalu et al., (2023), young adulthood is a highly productive phase, enabling nurses within this age range to perform various nursing tasks more optimally. This aligns with research by Elfreda, dkk (2023), which states that young adults tend to have higher motivation and idealism, particularly in adhering to established procedures.

The highest level of knowledge was found among nurses with a Ners (Professional Nurse) degree, with 8 respondents (38%) demonstrating high knowledge levels. The Ners education program provides a more in-depth and comprehensive understanding, helping nurses improve their competencies in clinical practice. This aligns with the study by Darsini, dkk (2019), which found that education level influences a person's knowledge—the higher the education level, the better the knowledge. However, education alone does not determine knowledge, as individual learning ability also plays a crucial role. These findings are supported by Widyaningrum (2021), who stated that education affects how individuals process information, with higher education enabling more rational responses in identifying problems or phenomena.

This is consistent with the research conducted by Amalia & Hariyati (2013), which found that training and education have a positive impact on nurses' knowledge. Similarly, a study by Marlisa (2019) in an Emergency Department found that most respondents with good knowledge held a bachelor's degree (12 respondents), whereas those with poor knowledge mainly had a diploma (DIII) degree (11 respondents).

The majority of nurses with good knowledge had previously attended training programs, accounting for 12 respondents (57%). The researcher assumes that most nurses have participated in BTCLS (Basic Trauma and Cardiac Life Support) training, which has significantly contributed to their knowledge. This training covers technical skills, management, and professional development relevant to nursing practice. These findings suggest that non-formal education, such as training and seminars, plays a vital role in enhancing nurses' knowledge. According to Hayati et al., (2022), an individual's ability and

willingness to improve knowledge is driven by personal motivation. Therefore, training and seminars serve as effective methods for enhancing nurses' competencies.

The highest level of knowledge was observed among nurses with more than 10 years of work experience, with 7 respondents (33%) in this category. The researcher assumes that longer work experience exposes nurses to a wide range of complex clinical cases, enriching their knowledge and clinical judgment. According to Dharmawati & Wirata (2016), knowledge development is influenced by experience and core skills, including flexibility, creativity, adaptability, and a continuous learning mindset. This is consistent with the study by Harigustian (2021), which found that extensive clinical experience in emergency settings provides greater opportunities for nurses to develop their knowledge.

Nurses' Competence in Conducting Secondary Survey for Trauma Cases in the Emergency Department of Bhayangkara Hospital Makassar

The findings of this study indicate that nurses' competence in conducting the secondary survey for trauma cases in the Emergency Department of Bhayangkara Hospital Makassar falls into the good category, with 17 respondents (81%) demonstrating a high level of competence. Based on observations, when a patient's condition is stable, nurses proceed with a comprehensive nursing assessment, filling out a secondary survey assessment form. This assessment includes: Screening for drug allergies, food allergies, and other potential triggers that could affect trauma patients, Inquiring about the patient's last meal and the cause and mechanism of injury—either directly from the patient if conscious or from family members if the patient is unconscious, Performing a thorough physical examination to identify hidden injuries that might have been missed during the initial assessment, Collaborating with doctors for diagnostic procedures, such as ECG, chest X-ray, CT scan, and other radiological examinations, based on the trauma case indications.

The study results show that most respondents rate nurses' competence as good. This is strongly influenced by work experience, as the majority of nurses in the Emergency Department of Bhayangkara Hospital Makassar have over 10 years of experience. With longer work experience, professional competency standards become more focused on performance quality, reflecting the level of expertise and skills required in nursing practice.

However, 4 respondents (19%) indicated that nurses' competence in handling emergency cases is still lacking. This may be due to less than 10 years of work experience, which means these nurses have not yet fully adapted to handling emergency situations optimally. The researcher assumes that technical nursing competence is a specialized skill that develops over time through experience. The more frequently a nursing intervention is performed, the more proficient a nurse becomes. Therefore, longer work experience plays a

crucial role in enhancing nurses' competence, especially in emergency case management.

This study aligns with the theory presented by Nurza, dkk (2021), which defines competence as the ability to perform tasks based on skills, knowledge, and work attitudes set by the profession. Competence represents specific knowledge, skills, and attitudes that characterize a professional in a particular field (Nurza, et al.,2021).

The study is consistent with the findings of Yustilawati et al., (2023), which state that nurses acquire competence through three main mechanisms: education, work experience, and training:

1. Education – Competence is acquired indirectly through theoretical learning, laboratory practice, and clinical training in academic institutions.
2. Work Experience – Competence develops directly as nurses encounter real-life cases and perform repeated interventions.
3. Training – Training programs provide standardized and up-to-date learning, where nurses are assessed based on their ability to perform emergency interventions, ultimately enhancing their skills and readiness in handling critical conditions.

Competence and Patient Satisfaction in Emergency Nursing

A study by Yustriani (2022) on the relationship between emergency nurses' competence and patient satisfaction in the Emergency Department of RSUD Abdul Wahab Sjahranie Samarinda highlights several essential competencies that emergency nurses must possess, including: Mastery of basic assessment and primary survey techniques, Triage skills, Proficiency in providing emergency nursing care, Ability to perform life-saving interventions and definitive therapy, Understanding of ethical and legal aspects in nursing practice, Effective therapeutic communication with patients and families, Teamwork skills, Proper documentation and reporting in patient records.

These findings reinforce the importance of continuous education, hands-on experience, and structured training in enhancing nurses' competence in emergency settings.

The Relationship Between Knowledge and Nurses' Competence in Conducting Secondary Survey for Trauma Cases in the Emergency Department of Bhayangkara Hospital Makassar

Based on the cross-tabulation analysis between knowledge and competence, four respondents with low knowledge levels were found to have good competence. This was attributed to over 10 years of work experience and active participation in emergency training programs. Despite having limited theoretical knowledge, these respondents were still able to effectively conduct secondary surveys in emergency cases. Their long work experience and continuous involvement in training were key factors in maintaining their high competence levels. This finding reinforces the idea that experience is a primary source

of knowledge—the longer a nurse works, the more clinical situations they encounter, leading to enhanced skills and expertise. These findings highlight the importance of integrating theoretical knowledge, practical experience, and continuous learning in nursing competence development.

There is a strong relationship between nurses' knowledge and competence in conducting secondary surveys and their level of education. This is because respondents were able to apply what they had learned into standardized and effective nursing interventions. Additionally, participation in training programs and years of work experience were also significant factors in enhancing nurses' knowledge. As nurses gain more experience and engage in various training programs, they acquire new knowledge sources and develop a deeper understanding of best nursing practices.

The study also found that nurses with good competence tend to have longer work experience, which enhances their skills and ability to manage emergency cases. This study aligns with Pitri (2020), who stated that job dimensions—including work challenges, knowledge levels, and skills—contribute to professional mastery. Astuti & Lopak (2021) also highlighted that work experience and timely, appropriate patient care require emergency competence training for nurses. Similarly, Mahdarsari et al., (2016) found that training significantly enhances nurses' knowledge and competence, particularly in emergency case management.

The goal of training is to enable nurses to provide accurate emergency interventions and reduce patient mortality rates in critical conditions. Training also improves coordination, communication, and teamwork among nurses and other healthcare professionals, leading to better healthcare services. In contrast, lack of training can result in suboptimal healthcare services, as nurses only rely on formal education without updating or refining their skills through emergency training (Supriyatno et al., 2021).

This study is also consistent with Siagian (2020), who found that work tenure influences a nurse's ability to adapt and gain extensive experience, which plays a crucial role in shaping work behavior. Nurses with longer work experience tend to have higher proficiency, capacity, and skills compared to those with limited experience.

According to Widaningsih (2016), newly employed nurses generally face challenges in managing cases compared to experienced nurses who have worked in the same unit for an extended period. Additionally, nurses with longer work experience have been exposed to diverse clinical cases over the years, making them more adept at handling complex clinical problems (Sesrianty, 2018).

Yousef et al.,(2018) emphasized that education and training significantly determine

nurses' knowledge in patient management. Strong knowledge levels contribute to better competence in handling trauma cases in hospitals.

Similarly, Shehab et al., (2018) found that apart from education and training, the presence of Standard Operating Procedures (SOPs) in emergency departments is vital in supporting nurses' knowledge in emergency care for trauma patients. Marlina et al., (2021) further highlighted that nurses' experience in emergency units has a significant relationship with their knowledge and competence. The more trauma cases a nurse handles, the greater their knowledge and competence. A study by Ali, Esraa Hamdy Hassan, dkk, (2022) showed significant improvement in nurses' knowledge and competence after implementing a training program on managing head trauma patients at Banha Hospital. This aligns with previous research, which consistently demonstrates that education and training significantly enhance nurses' knowledge and competence.

This study found a statistically significant relationship between: Knowledge and triage competence ($p\text{-value} = 0.01$), Knowledge and primary survey competence ($p\text{-value} = 0.047$) and Knowledge and secondary survey competence ($p\text{-value} = 0.04$). These findings indicate that higher knowledge levels among emergency nurses improve their competence in trauma case management (Yustilawati et al., (2023). Another study found a significant relationship between knowledge and primary survey competence in trauma cases at Bhayangkara Hospital Makassar ($p\text{-value} = 0.007$, $r\text{-value} = 0.571$). This suggests a moderate positive correlation between nurses' knowledge and competence, meaning that better knowledge leads to improved nursing interventions in trauma cases (Muslimin, 2023).

The secondary survey is performed after triage and the primary survey. It involves a comprehensive head-to-toe assessment to identify secondary injuries that may have been missed during the initial evaluation. The findings are then documented and prioritized for further intervention. Anticipatory actions can be taken to prevent potential health threats based on the collected data (Yustilawati et al., 2023). Consistent with Ali, dkk, (2022), this study found that nurses' knowledge and skills in managing head trauma cases significantly improved after competence training. This training included triage, primary survey, and secondary survey, further demonstrating that training plays a crucial role in enhancing nurses' competence in trauma management.

CONCLUSIONS

The characteristics of nurses in the Emergency Department of Bhayangkara Hospital Makassar are as follows: the majority belong to the young adult age group (26–35 years old), with 15 respondents in this category. Most of the respondents are male, accounting for 13 participants. In terms of educational background, the majority hold a Nursing Profession (Ners) degree, with 17 respondents having this qualification. Additionally, 12 respondents

have more than 10 years of work experience. Regarding knowledge and competence levels in conducting the secondary survey, most nurses fall into the high category. The chi-square analysis results show a p-value of 0.005 (< 0.05 alpha level), indicating a significant relationship between knowledge and competence in conducting the secondary survey for trauma cases. This means that the higher the level of knowledge, the higher the competence of nurses in performing the secondary survey in trauma cases.

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