

Literature Review: Factors Influencing Emergency Department Nurses' Ability in Managing Head Injury Patients

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ABSTRACT

Head injury is a traumatic event that causes morphological damage to the structures of the human head due to external force and requires appropriate, rapid, safe, and effective medical management to save patients' lives. Emergency Department (ED) nurses play a critical role in the initial management of head injury patients, and their ability is influenced by various individual and professional factors. This study employed a literature review design. Scientific articles were obtained from Google Scholar and PubMed databases published between 2015 and 2020. Relevant articles were manually selected based on predefined inclusion criteria. A total of nine journals published within the last five years and relevant to the research questions were included in the review. The findings indicate that several factors influence the ability of ED nurses in managing head injury patients. Based on the nine reviewed journals, ED nurses generally demonstrated good knowledge of early head injury management, had more than ten years of work experience, showed fast response times, possessed adequate clinical skills, administered oxygen therapy accurately, had high levels of triage knowledge, and performed head injury management in accordance with established procedures. Knowledge, clinical skills, work experience, and response time are key factors influencing ED nurses' ability to manage head injury patients. Hospitals are therefore expected to provide regular emergency care training, particularly for newly assigned ED nurses, to improve knowledge and strengthen nurses' competencies in head injury management.

Keywords: Ability, Head Injury, Nurse

BACKGROUND

Head injury remains a global health problem and is a major cause of mortality, disability, and cognitive impairment, particularly among young and productive age groups. Patients with head injuries frequently experience cerebral edema, defined as excessive accumulation of fluid in the intracellular or extracellular spaces of the brain, or intracranial hemorrhage, both of which may lead to increased intracranial pressure. These conditions require prompt and accurate emergency management to prevent secondary brain injury (Aprilia, 2016).

Inadequate or delayed emergency care for head injury patients can result in death or permanent disability. Therefore, intensive care and strong support systems are essential to address patient needs, prevent complications, and provide comprehensive nursing interventions (Krisanty, 2017). According to the World Health Organization (WHO), approximately 16,000 people die each day worldwide due to all types of injuries, with injuries accounting for about 12% of the global disease burden and ranking as the third leading cause of death overall (WHO, 2020).

Globally, road traffic accidents account for approximately one million deaths annually, with an additional 50 million people suffering injuries, many of whom are vulnerable road users such as pedestrians, motorcyclists, children, and passengers (WHO, 2020). The incidence of head injury continues to increase worldwide in parallel with the growing use of motor vehicles. WHO estimates that road traffic accidents causing head injury have become the third leading cause of disease and trauma globally.

In Indonesia, approximately 50% of head injury incidents are caused by motor vehicle accidents. National data indicate a continuous increase in injury prevalence, rising from 7.5% in 2019 to 8.2% in 2020, with road traffic accidents being the dominant cause (Ministry of Health of Indonesia, 2020). Given the magnitude of this problem, Emergency Departments serve as the main gateway for managing emergency cases, particularly head injuries. Effective head injury management requires rapid, accurate, and protocol-based interventions, including adherence to the ABCDE (Airway, Breathing, Circulation, Disability, Exposure) principles.

Several factors influence nurses' ability to manage head injury patients, including age, gender, educational level, employment status, length of work experience, and level of knowledge. Knowledge and experience are considered dominant factors in shaping nurses' competencies and performance in emergency situations (Notoatmodjo, 2017). Therefore, understanding these factors is essential to improving the quality of emergency nursing care.

According to the International Council of Nurses, a nurse is a person who has completed a recognized nursing education program and is authorized to provide nursing services and is responsible for health promotion, disease prevention, and patient care (Fahmi, 2019). Nurses' ability refers to their capacity to perform nursing and medical actions in accordance with established standards and procedures within healthcare facilities (Ministry of Health, 2020).

Robbins (2018) classifies ability into two main components: intellectual ability and physical ability. Intellectual ability involves mental activities such as thinking, reasoning, and problem-solving, while physical ability relates to stamina, strength, and clinical skills required to perform demanding tasks in emergency situations.

Concept of Head Injury

Head injury is a form of trauma affecting the brain that can result in physical, intellectual, emotional, and social changes. It commonly occurs due to traffic accidents, falls, industrial accidents, sports injuries, or violence (Mansjoer, 2016). Clinical manifestations of head injury include skull fractures, concussions, and cerebral contusions, each presenting with specific signs and symptoms such as loss of consciousness, cerebrospinal fluid leakage, pupil abnormalities, nausea, vomiting, and impaired motor function (Judha, 2018).

METHODS

This study used a literature review approach. Articles were sourced from Google Scholar and PubMed databases and published between 2016 and 2020. Relevant studies were selected manually based on their relevance to the research objectives, focusing on factors influencing nurses' ability to manage head injury patients in emergency settings.

This study employed a literature review design to comprehensively examine factors influencing Emergency Department (ED) nurses' ability to manage patients with head injuries. The literature review approach was selected to synthesize existing empirical evidence and theoretical perspectives related to nurses' knowledge, skills, experience, and response time in emergency head injury management. This method allows for the identification of dominant factors affecting nursing performance and provides a structured understanding of best practices in emergency care.

Scientific articles were obtained from Google Scholar and PubMed databases, which were chosen due to their extensive coverage of peer-reviewed health and nursing research. The search process was conducted using relevant keywords, including *emergency department nurses*, *head injury management*, *nurses' ability*, *knowledge*, *clinical skills*, and *response time*. The search was limited to articles published between 2016 and 2020 to ensure the inclusion of recent and relevant studies reflecting current emergency nursing practices.

The selection of articles was carried out manually based on predefined inclusion criteria, which included: (1) original research articles focusing on nurses working in emergency departments, (2) studies discussing factors influencing nurses' ability or performance in managing head injury patients, (3) articles published in English or Indonesian, and (4) full-text availability. Articles were excluded if they were not directly related to head injury management, focused solely on physicians or other healthcare professionals, or lacked clear methodological descriptions.

A total of nine journals met the inclusion criteria and were included in the review. Data were extracted systematically from each article, including study design, sample characteristics, key variables, and main findings related to nurses' knowledge, clinical skills, work experience, response time, and adherence to standard operating procedures. The extracted data were then analyzed descriptively and comparatively to identify recurring themes and dominant factors influencing ED nurses' ability to manage head injury patients effectively.

RESULTS

The reviewed studies consistently demonstrated that nurses' knowledge significantly affects the quality of head injury management. Several studies reported that most ED nurses possessed good knowledge of intracranial pressure management, airway and circulation assessment, and early head injury interventions (Lisa, 2016; Maizarni, 2016).

Work experience was also identified as an influential factor. Nurses with longer working experience, particularly more than five to ten years, were more likely to perform procedures according to established protocols (Vera, 2017). Response time and accuracy of interventions were significantly associated with patient survival outcomes (Dianingrum, 2018).

In addition, nurses' clinical skills, triage knowledge, and adherence to standard operating procedures were strongly related to effective head injury management. Several studies highlighted significant relationships between triage knowledge and triage accuracy, as well as between motivation, hospital policy, and accuracy in oxygen therapy administration (Bayu, 2019; Danang, 2020; Fernalia, 2020).

The results of the literature review indicate that multiple interrelated factors influence Emergency Department nurses' ability to manage patients with head injuries. These factors encompass individual competencies, professional experience, and organizational support systems that collectively affect the quality and effectiveness of emergency nursing care. To provide a clearer and more systematic overview, the key findings from the reviewed studies are summarized in Table 1.

Table 1. Summary of Factors Influencing Emergency Department Nurses' Ability in Managing Head Injury Patients

Factor	Description of Findings	Key Evidence from Reviewed Studies
Nurses' Knowledge	Nurses' knowledge was consistently found to have a significant impact	Lisa (2016); Maizarni (2016)

	<p>on the quality of head injury management. Most Emergency Department nurses demonstrated good understanding of intracranial pressure management, airway and circulation assessment, and early head injury interventions. Adequate knowledge enabled accurate assessment and timely clinical decision-making.</p>	
Work Experience	<p>Length of work experience influenced nurses' compliance with established clinical protocols. Nurses with longer experience, particularly those with more than five to ten years of service in emergency settings, were more likely to perform head injury management according to standard procedures.</p>	Vera (2017)
Response Time and Intervention Accuracy	<p>Faster response times and higher accuracy in emergency interventions were significantly associated with improved patient survival outcomes. Timely implementation of life-saving measures reduced the risk of secondary brain injury in head injury patients.</p>	Dianingrum (2018)
Clinical Skills	<p>Adequate clinical skills were strongly associated with effective head injury management. Nurses with well-developed technical and practical skills were able to carry out emergency procedures efficiently and safely.</p>	Fernalia (2020)
Triage Knowledge	<p>High levels of triage knowledge were significantly related to accurate triage decisions. Nurses with better understanding of triage principles were more capable of prioritizing head injury patients appropriately in emergency situations.</p>	Bayu (2019); Danang (2020)

Adherence to Standard Operating Procedures (SOPs)	Compliance with standard operating procedures played a crucial role in ensuring effective head injury management. Adherence to SOPs supported consistent, safe, and evidence-based nursing interventions.	Fernalia (2020)
Organizational Factors (Motivation and Hospital Policy)	Motivation and supportive hospital policies were found to influence the accuracy of nursing interventions, particularly in oxygen therapy administration. Institutional support enhanced nurses' performance and adherence to clinical guidelines.	Bayu (2019); Danang (2020)

As presented in Table 1, nurses' knowledge emerged as the most dominant factor influencing effective head injury management in emergency settings. Adequate knowledge related to intracranial pressure control, airway and circulation assessment, and early intervention enables nurses to perform accurate clinical assessments and timely decision-making. In addition, work experience, particularly extended service in emergency departments, was associated with greater adherence to established clinical protocols. Other important factors included response time, clinical skills, triage knowledge, and compliance with standard operating procedures, all of which contributed to improved patient outcomes. Organizational factors, such as motivation and supportive hospital policies, further strengthened nurses' performance by promoting accurate and consistent implementation of emergency interventions, including oxygen therapy.

DISCUSSION

Based on the review of nine journals, nurses' knowledge emerged as the most influential factor affecting ED nurses' ability to manage head injury patients. Adequate knowledge enables nurses to perform accurate assessments, make appropriate clinical decisions, and prevent secondary brain injury. These findings align with previous studies indicating that nurses with higher knowledge levels are more likely to perform interventions according to clinical standards (Arsani, 2015; Said, 2016).

Differences in educational background and clinical experience contribute to variations in nurses' knowledge and skills. Nurses with prior experience in emergency or critical care settings tend to have better competencies in managing head injury patients. Continuous education, clinical training, and exposure to emergency cases enhance nurses' ability to respond effectively to critical situations (Notoatmodjo, 2017).

Clinical skills and response time are equally essential, as head injury patients require rapid and precise interventions. Therefore, hospitals should implement regular training programs, monitoring systems, and reward mechanisms to improve nurses' performance and ensure high-quality emergency care.

CONCLUSION

The literature review concludes that nurses' knowledge is the most dominant factor influencing ED nurses' ability to manage head injury patients. Other contributing factors include clinical skills, work experience, and response time.

Recommendations

Hospitals are encouraged to provide continuous emergency care training, particularly for newly appointed ED nurses, to enhance knowledge and strengthen competencies in head injury management. Ongoing education and professional development are essential to improving patient outcomes and nursing care quality.

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