



## Emergency nursing approach to trauma cases in Türkiye

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### Abstract

**Background:** Defining the emergency nursing approach to trauma patients and identifying deficiencies is crucial for providing effective, fast, safe, and high-quality emergency nursing care in the future. This study aimed to describe the nursing activities of emergency nurses working in a tertiary university hospital in the province of Samsun, located in the Eastern Middle Black Sea Region of Türkiye, regarding the emergency nursing approach to trauma cases over a 1-year period.

**Methods:** The research was conducted with a mixed method using data from 2018. Both qualitative and quantitative methods were employed to define the emergency nursing approach to trauma cases in the emergency department (ED). Data were collected through a retrospective review of medical records of trauma patients (N=2540) in the ED and focus group discussions with 10 emergency nurses. The data extracted from the medical records of ED trauma patients were compared in terms of compliance with the emergency nursing job descriptions specified in the Nursing Regulation (NR) and the Emergency Nurses Association (ENA) emergency nursing guide. Quantitative data were reported using frequency and percentage, while content analysis was performed for qualitative data. Content analysis involved coding, identifying themes, and organizing data according to the codes and themes that were determined.

**Results:** The study revealed that ED nurses primarily assessed vital signs (81.5%) and consciousness (34.8%) and focused on activities related to the circulatory system (56%) in their nursing interventions. The research also indicated that the nurses' knowledge regarding the primary and secondary evaluation of emergency patients was insufficient. Although not currently a requirement in Türkiye, nurses expressed that obtaining emergency nursing education should be a prerequisite for working in the ED.

**Conclusion:** The study found that ED nurses in Türkiye lacked a systematic guideline for approaching trauma patients, and there was inadequate adherence to ENA guidelines in practice. Additionally, independent nursing interventions that enhance the influence, visibility, and autonomy of the nursing profession were not being implemented in the ED.

### Article History

Received: 10 January 2023

Received in revised form: 4 September 2023

Accepted: 25 December 2023

Published online: 15 May 2024

DOI: [10.29252/jgbfmm.21.1.24](https://doi.org/10.29252/jgbfmm.21.1.24)

### Keywords

Emergency Service, Hospital  
Wounds and Injuries  
Nursing

Article Type: Original Article



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### Highlights

#### What is current knowledge?

- Trauma is a common health problem and has a high mortality rate.
- Treatments, interventions, and care plans founded on trauma protocols have been proven to enhance survival rates and reduce incidents of malpractice.
- One of the critical responsibilities of ED nurses is the creation of nursing documents related to the concept of trauma.
- Trauma patients in EDs can benefit from the implementation of evidence-based nursing care.

#### What is new here?

- Emergency department nurses in Türkiye have not employed dedicated trauma protocols (Lack of documentation implies absence of evidence).
- There exist prospects for enhancing evidence-based emergency nursing trauma education on a worldwide scale.
- Emergency room nurses frequently overlook autonomous practices that could amplify the influence, prominence, and independence of the nursing field.
- Emergency department nurses underscored the significance of acquiring emergency nursing education as a fundamental requirement for employment in the ED.

### Introduction

Trauma is a significant global health issue (1,2), with over 5 million people succumbing to trauma-related injuries annually. In the United States 367,072 individuals were admitted to the emergency department (ED) for trauma in 0 to 19 years 2010, a number that escalated to 479,458 in 2019 (3). Traumatic injuries are responsible for 59% of all deaths among individuals up to the age of 45 (4). Research indicates that 25-50% of trauma-related fatalities can be averted through prompt and accurate initial interventions (5). Within EDs, all actions that save lives, prevent secondary injuries and stabilize a patient's condition based on the findings of rapid patient assessment fall under the purview of initial

interventions (1,2). First interventions carried out in accordance with widely accepted contemporary guidelines play a crucial role in reducing trauma-related mortality rates (6).

The Advanced Trauma Life Support (ATLS) guidelines serve as the standard emergency protocol for handling trauma cases in EDs. While ATLS sets benchmarks at the provider level, the Trauma Nursing Core Course (TNCC) establishes standards for nursing care. Treatments, interventions, and care plans founded on trauma protocols have been proven to enhance survival rates and reduce incidents of malpractice. The delivery of trauma care, adhering to ATLS standards, necessitates trauma teams comprising healthcare professionals with extensive experience, expected skills, and competencies (6). Trauma nurses assume various roles, including participating in resuscitation efforts and designing and implementing comprehensive nursing care by conducting primary and secondary patient evaluations (7).

In Türkiye, nurses assigned to the ED during the intervention process for trauma patients are integral members of the trauma team and are required to deliver care in accordance with the Ministry of Health Nursing Regulation (NR). This regulation was developed while taking international guidelines into consideration (8). One of the critical responsibilities of ED nurses is the creation of nursing documents related to the concept of trauma. These records should encompass the patient's overall condition, signs and symptoms, emergency procedures, administered care, treatment progress, and more. They should be meticulously detailed to provide a chronological account of all interventions (7,9). The outcomes of such records can serve as reference points in various areas, including enhancing the quality and efficacy of healthcare services and facilitating the development and prospective planning of nursing care. Moreover, in cases of medical malpractice, these records are utilized as evidence of care provided (10).

To the best of our knowledge, there have been no prior studies in the literature that assess the compliance of interventions by ED nurses with local and international guidelines or their competence in medical documentation. In this study, we retrospectively analyzed the approaches of ED nurses to trauma cases at a university hospital, which offers tertiary healthcare services as a regional Ondokuz Mayıs University hospital, over a 1-year period. The objective of this study is to delineate the activities of ED nurses in Türkiye in 2018 concerning the

emergency nursing approach to trauma cases over a 1-year duration and to identify any shortcomings by assessing the actions of ED nurses in Türkiye against interventions associated with the emergency nursing approach as per current guidelines.

## Methods

The research was conducted using a mixed method. A qualitative method was employed in the study to define the emergency nursing approach to trauma cases in the ED and to provide support, explanation, and reinforcement of the quantitative findings. Therefore, the embedded mixed method approach sheds light on the research, with a greater emphasis on the quantitative method (11). In the initial stage of the study, the nursing documentation of trauma cases treated in the ED between 01.01.2018 and 31.12.2018 was retrospectively analyzed. Subsequently, in the second stage, a focus group interview was conducted with 10 ED nurses who had worked in the same period, using a semi-structured interview format to explore the emergency nursing approach to trauma cases.

### Data collection

Collection of quantitative data: The data collection form, prepared by the researcher in line with the literature (7,12,13), served as the data collection tool. The form encompasses sociodemographic information, admission characteristics of trauma cases, injury mechanism, and severity, and all the practices documented in the nurse forms related to the trauma case. Quantitative data on nursing interventions/activities were extracted from the records within the nurse observation form, which is the responsibility of the nurses. It is imperative that the nursing observation form is signed by the nurse conducting the procedure. Other details concerning trauma cases (hospitalization time, diagnosis, examinations, etc.) were retrieved from the patient automation system. The study encompassed all documents pertaining to 2,540 patients who received a preliminary diagnosis of trauma within the International Classification of Diseases (ICD-10) diagnostic coding system between 01.01.2018 and 31.12.2018. The ICD is an international classification system for diseases and health problems. Consequently, research data were collected from the records of all trauma cases brought to the ED, categorized as red (very urgent), yellow (emergency), or green (non-urgent), regardless of whether they were treated on an outpatient or inpatient basis.

The results of the data regarding nursing practices were compared in terms of compliance with the emergency nursing job descriptions outlined in NR and ENA's emergency nursing guide (7,8). The job descriptions detailed in NR partially align with the responsibilities outlined by ENA. Activities to be carried out in accordance with the findings related to emergency patient assessments were assessed alongside the interventions and/or activities included in the Nursing Interventions Classification (NIC) (13).

### Collection of qualitative data

A focus group interview is a method in which participants share their views and ideas within the context of a specific concept, influencing one another. It is recommended that this method be conducted with interview groups consisting of 4-12 participants (14). In this research, focus group interviews were conducted with 2 groups, each consisting of 5 participants, in 2 separate sessions held on different days, involving a total of 10 ED nurses. The average age of the nurses was  $30.90 \pm 7.79$  years, and their average work experience was  $5.70 \pm 6.11$  years. Of the ED nurses, 80% were women, 70% were university graduates, and 30% had associate degrees. The sample was determined using criterion sampling, a sub-category of the purposive sampling method (12). The criterion was defined as "participation in the retrospective data collection process in the ED and working in all areas of the ED [red (very urgent), yellow (urgent), green (non-urgent)]." Each interview session lasted approximately 43-45 minutes. During the focus group interviews, questions were posed in Turkish, the common language among the nurses. A pilot study was conducted with 4 ED nurses to enhance the clarity of the questions in the semi-structured interview form and ensure their alignment with the research objectives. Factors contributing to concept complexity were identified and addressed. The 4 nurses from the pilot group, who worked in the same ED, were not included in the subsequent focus group interviews. Participants were informed that the interviews would be recorded, and their written and verbal consent was obtained. Participation in this study was entirely voluntary. The same semi-structured interview form was employed in both focus group sessions. Qualitative data were coded by the researchers, with the sessions labeled as S.1 and S.2 and the nurses denoted as N1-5. For instance, S.1/N3 refers to nurse number 3, who participated in the first session.

Semi-structured interview form: The form was developed based on 3 main concepts in alignment with the research objectives. The questions in the form were designed to explore nursing processes in the ED, the emergency nursing approach to trauma cases, nursing interventions, and nursing documentation concepts. The form was subjected to expert review by a professor in basic medical sciences, a professor in emergency medicine, and an associate professor in health sciences nursing. Their feedback was incorporated into the form, and it was further refined by obtaining input from 2 independent experts who are assistant professors (Table 1).

## Data analysis

Analysis of the quantitative data: The research data were analyzed in the SPSS v. 25.0 package (IBM) program. Descriptive data were presented as frequencies and percentages for categorical data.

Content analysis was performed, which involved coding, identifying themes, and organizing the data in accordance with the established codes and themes to evaluate the qualitative data. Researchers and 2 independent lecturers unrelated to the subject examined transcripts of the interviews to reduce inter-rater bias and enhance reliability in content analysis. Subsequently, the determined codes were compared, and those that reached a consensus were included in the study.

Table 1. Semi-Structured interview form

Core concepts	Questions
Nursing procedure in the emergency department (ED)	<ul style="list-style-type: none"> <li>* Are there any special education, courses, or experience and similar conditions required to be an ED nurse in your institution?</li> <li>* Do you know what the duties, authorities, and responsibilities of the emergency nurse are as defined in the Nursing Regulations (NR), which was published by the Ministry of Health with amendments in 2011?</li> <li>* Can you give examples of your practices regarding the duties, authorities, and responsibilities of ED nurses in the NR?</li> </ul>
Emergency nursing approach/interventions in trauma cases	<ul style="list-style-type: none"> <li>* Do you know the primary evaluation steps applied to trauma cases within the scope of the emergency nursing approach?</li> <li>* What would you like to say about the nursing interventions you made/should be made during the trauma case primary evaluation phase?</li> <li>* Do you know the secondary evaluation steps applied to trauma cases within the scope of the emergency nursing approach?</li> <li>* What would you like to say about the nursing interventions you made/should be made during the secondary evaluation phase of the trauma case?</li> </ul>
Nursing documentation	<ul style="list-style-type: none"> <li>* Do you record all the procedures and interventions for the care of the trauma patient in the nurse observation form?</li> <li>* What would you like to say about the interventions you have registered or not?</li> <li>* What would you like to say about the suitability and contribution of the nurse observation forms you use in ED to record-keeping?</li> </ul>

## Results

### Demographic data

In the context of the research, we examined the files of 2540 trauma cases. The findings revealed that 65.1% of the cases were young, 27.6% belonged to the pediatric age group, and 69.9% were male. Among the cases admitted to the ED after trauma, 31.5% (799) resulted from traffic accidents, while 23% (583) were due to falls from heights. In 33.1% (841) of the trauma cases, no information was available regarding the cause of the trauma. Following emergency intervention, 35.9% of the cases were hospitalized in the relevant service, and 0.6% unfortunately succumbed. It was also determined that 37.1% of the trauma cases had soft tissue injuries, while 14.6% experienced multiple traumas. Remarkably, almost half of the trauma cases (46.6%) were not triaged, and 19.1% received treatment and follow-up in the red (very urgent) area. Consultation was required for 65.1% of trauma cases, and 23.9% of them had preexisting chronic diseases. Additionally, 14.3% of the cases received splinting, wrapping, and bandaging as treatment methods (Table 2).

### Emergency patient primary and secondary evaluation nursing intervention findings

Emergency nurses performed physical assessments and documented airway conditions in only 16.2% of trauma cases. There were no recorded activities related to ensuring airway patency, airway clearance, aspiration prevention, or preparations for advanced airway management. Respiratory assessments were documented in just 0.3% of cases, focusing solely on the presence of spontaneous breathing. No data were recorded regarding chest movements, changes in respiratory effort, chest wall integrity, or crepitation findings as part of the respiratory assessment. Activities such as providing respiratory support, monitoring oxygen saturation, administering oxygen supplementation, and reporting abnormalities to physicians were carried out in only 3% of cases. Circulation assessments were documented by emergency nurses in a mere 0.4% of trauma cases. Interestingly, 56% of nurses implemented interventions for circulatory issues. Neurologic evaluations were conducted for 885 patients, with records limited to assessing the level of consciousness and pupil size. Pupil reactions were not checked, and the Glasgow Coma Scale (GCS) was not calculated. There were no records of nursing procedures for frequent neurologic monitoring, ensuring an appropriate environment, or reporting abnormalities to physicians. Exposure and environmental assessments were performed in only 1.6% of cases, and at this stage, 3.7% of patients received nursing interventions (see Table 3).

Emergency nurses successfully assessed and documented vital signs in 81.3% of the cases. As an intervention to regulate hemodynamics, nurses conducted intravenous fluid monitoring in 30.4% of trauma cases. They also assessed and documented pain relief measures in a small fraction, just 0.2% of cases. It is worth noting that as a nursing intervention, pharmacologic methods were employed to alleviate pain for 700 patients, while non-pharmacologic methods were not utilized. A medical history was obtained from patients in 1.1% of the cases. Additionally, there is a record of 9 patients who underwent comprehensive head-to-toe examinations (Table 4).

### Qualitative findings

The ED nurses knew the primary and secondary assessment of the emergency patient and used the codes in Table 5 to define the primary and secondary assessment of the trauma case.

Emergency nurses stated that they recorded all the procedures and interventions for the care of the trauma patient on the nurse observation form, and the codes in Table 6 were analyzed from their statements on the subject.

## Discussion

### Discussion on emergency patient primary assessment findings

**Ensuring Airway Safety:** To identify airway issues, nurses must assess the patient's airway patency (7). Current guidelines emphasize the importance of airway evaluation in trauma cases and recommend its practice (6,7). However, in this study, the airways of only 0.3% of trauma cases were evaluated and documented in the medical reports. This finding contradicts the quantitative results, which showed that 33.4% of trauma cases had a high risk of airway compromise, and 19.1% of them were treated in the red (very urgent) area. This attitude of ED nurses is believed to stem from the perception that they are not responsible for assessing airway findings in patients, underscoring the need for training in emergency nursing practices.

**Respiratory Evaluation:** Once airway safety is established, emergency nurses turn their attention to assessing the patient's breathing effectiveness. This study revealed that 14.6% of trauma cases involved multiple traumas, with 3.8% of them suffering from chest injuries. Surprisingly, nurse documentation indicated that only 0.3% of the 2540 cases were evaluated for respiration. This unexpected finding highlights the deficiency in emergency nursing interventions over the course of 1 year. Heidari and Shahbazi found that nurses had moderate awareness of airway aspiration principles (15), a result similar to the lack of sensitivity toward respiratory assessment in our study. In contrast, a qualitative study with anesthesia nurses found that nurses were vigilant for signs of a difficult airway and actively searched for physical features indicative of a difficult airway, such as obesity and a short neck (16). These studies demonstrate that nurses can practice their profession more autonomously by increasing their education, knowledge, and skill levels.

Close and vigilant monitoring of respiratory parameters is crucial in acute care settings (17). The NR defines this responsibility as follows: "(ED nurses) plan, implement, and evaluate efforts to address patients' respiratory problems." (8) However, studies on this subject have consistently shown that ED nurses do not regularly assess respiratory parameters. Flenady et al. also reported inadequate adherence to respiratory symptom evaluation among ED nurses. As indicated in our study, ED nurses attempted to assess or count respirations in only 3% of cases, consistent with findings in the literature (17). It is important to note that while this aligns with existing literature, the presence of conflicting findings, such as the high percentages of patients diagnosed with multiple trauma (14.6%), head trauma (9.5%), and spinal trauma (1.5%) among the 2540 trauma cases, suggests some variations. The field of emergency nursing is not yet clearly defined in nursing undergraduate programs in Türkiye, potentially contributing to the lack of training in emergency nursing during undergraduate education for ED nurses, which may have influenced this result.

**Table 2.** Sociodemographic characteristics of trauma cases and distribution of trauma information (N=2540)

Characteristics		N	%
Age (y) (WHO)	Child (birth-17)	700	27.6
	Young (18-65)	1654	65.1
	Middle-aged (66-79)	148	5.8
	Old (80-99)	38	1.5
Sex	Female	764	30.1
	Male	1776	69.9
Causes of trauma	Traffic accident (Motor vehicle accident)	799	31.5
	Falling from a height	583	23
	Assault	186	7.3
	Gunshot injury	93	3.7
	Sharp object injuries	38	1.5
	No trauma cause information	841	33
Injured anatomical area	Head trauma	241	9.5
	Spine injury	39	1.5
	Face and neck injury	198	7.8
	Chest injury	97	3.8
	Abdominal injury	46	1.8
	Extremity injury	264	10.4
	Soft tissue injury	943	37.2
	Multiple trauma	372	14.6
	Simple injury	340	13.4
Triage practice of trauma cases	Red (Very urgent)	484	19.1
	Yellow (Emergency)	692	27.2
	Green (Not urgent)	180	7.1
	Triage not applied	1184	46.6
Status of trauma cases after emergency intervention	Had a surgery	174	6.9
	Hospitalized	913	35.9
	Discharged	696	27.4
	Left voluntarily	211	8.3
	Sent to external center	18	0.7
	Excitus (Died)	15	0.6
	No information	513	20.2
Records of physician practices in the patient automation system	Object removal and dressing	364	14.3
	Reduction	49	2
	Splint/wrap and bandage application	198	7.8
	Chest tube insertion	33	1.3
	Other	783	30.8
	No information	1113	43.8
Requesting a consultation	Consultation	1653	65
	No consultation	887	35
Presence of chronic disease	Presence of chronic disease	194	7.4
	No presence of chronic disease	414	16.3
	No information	1932	76.3

**Table 3.** Distribution of records on emergency patient primary assessment and nursing interventions (N=2540)

Primary evaluation			Record		The total number of procedures performed			
Steps of the procedure			n	%				
A Airway	Evaluation	Airway	411	16.2	2540			
		No evaluation	2129	83.8				
	Nursing interventions	ETE preparation	12	0.5	2556			
		Cervical spinal immobilization	4	0.1				
		Total intervened patients	16	0.6				
B Respiration	Evaluation	Non-intervened patient	2524	99.4	2548			
		Spontaneous breathing	8	0.3				
		Total patients evaluated	8	0.3				
		Total patients not evaluated	2532	99.7				
	Nursing interventions	Respiratory support	34	1.3	2622			
		Oxygen support	15	0.6				
		Oxygen saturation monitoring	31	1.2				
		Notification of abnormalities to the physician	2	0.1				
		Total intervened patients	77	3				
		Non-intervened patient	2463	97				
C Circulation	Evaluation	Skin color	6	0.2	2551			
		Uncontrolled external bleeding	2	0.1				
		Pulse pressure	3	0.1				
		Total patients evaluated	11	0.4				
		Total patients not evaluated	2529	99.6				
	Nursing interventions	Monitoring	73	2.9	3974			
		ECG recording	1382	54.4				
		Peripheral vascular access	771	30.4				
		Frequent vital signs monitoring	738	29.1				
		Defibrillation	3	0.1				
		Intravenous fluid therapy	922	36.3				
		Blood transfusion	24	0.9				
		Notification of abnormalities to the physician	61	2.4				
		Total intervened patients	1423	56				
		Non-intervened patient	1117	44				
		D Neurological	Evaluation	State of consciousness		881	34.7	885
				Pupil size		4	0.2	
Total patients evaluation	885			34.8				
No patients evaluation	1655			65.2				
E Exposure and environment check	Evaluation	Abnormal skin findings	39	1.5	41			
		Presence of abnormal odor	2	0.1				
		Total patients evaluated	41	1.6				
		Total patients not evaluated	2499	98.4				
	Nursing interventions	Maintaining body temperature	2	0.1	106			
		Frequent body temperature monitoring	25	1				
		Notification of abnormalities to the physician	79	3.1				
		Total intervened patients	93	3.7				
		Non-intervened patient	2447	96.3				
							2540	

ETE: Endo-tracheal intubation ECG: Electrocardiogram

**Table 4.** Distribution of records related to emergency patient secondary evaluation and nursing interventions (N=2540)

Secondary evaluation			Record		The total number of procedures performed	
Steps of the procedure			n	%		
F All vital signs	Evaluation	Vital signs (fever, pulse, respiration, arterial blood pressure) measurement	2066	81.3	2074	
		Vital signs could not be measured	8	0.3		
		Total patients evaluated	2070	81.5		
		Total patients not evaluated	470	18.5		
	Nursing interventions	Fluid follow-up	748	29.5	775	
		Fluid intake and output	23	0.9		
		Notification of abnormalities to the physician	4	0.2		
		Total intervened patients	771	30.4		
G Relief measures	Evaluation	Non-intervened patient	1769	69.6	2540	
		Pain	4	0.2		
		Total patients evaluated	4	0.2		
		Total patients not evaluated	2536	99.8		
	Nursing interventions	Pharmacological intervention	700	27.6	700	
		Total intervened patients	700	27.6		
		Non-intervened patient	1840	72.4		
						2540
H Patient history, head-to-toe examination	Evaluation	History	Allergy	0	0.0	2540
			Drugs used	2	0.1	
			Past health history	14	0.6	
			Last meal	0	0.0	
		Cause of injury	13	0.5		
		Head-to-toe examination	9	0.4		
		Total patients evaluated	33	1.3		
		Total patients not evaluated	2507	98.7		
I: Evaluate posterior surfaces	Evaluation	Nursing Interventions	0	0.0	0	
		Body posterior surfaces	0	0.0	0	

**Table 5.** Codes regarding emergency nursing approaches/interventions in trauma cases

Questions	Code
Do you know the primary evaluation steps applied to trauma cases within the scope of the emergency nursing approach?	Yes
What would you like to say about the nursing interventions you made/should be made during the trauma case primary evaluation phase?	Triage
	Vital signs
	Monitoring
	Peripheral vascular access
	Shock indicators
	Circulation
	CAB (Circulation, Airway, Respiration) application
Do you know the secondary evaluation steps applied to trauma cases within the scope of the emergency nursing approach?	Fluid therapy
	Administering the treatment
	Stabilization
	Monitoring
	Evaluating body temperature in hypothermia
	Conducting examinations
	Glasgow Coma Scale (GCS)
	Evaluating body integrity
	Removing clothes
	Taking the patient on the spine board
	Preparing a report for belongings
	Handing them over to the police
	Attention to evidence
	Personal protective equipment
Privacy	
What would you like to say about the nursing interventions you made/should be made during the secondary evaluation phase of the trauma case?	Triage color
	No special treatment for trauma patients for secondary assessment
	Verbal practices are important
	Forensic file
	Triage color red

**Table 6.** Codes regarding nursing documentation

Questions	Code
Do you record all the procedures and interventions for the care of the trauma patient in the nurse observation form?	Yes
What would you like to say about the interventions you have registered or not?	When the patient arrives, all findings about how the patient is doing are recorded.
	What was done after the patient arrived is recorded
	Is he/she intubated?
	Which part of his/her body is traumatized?
	Glasgow Coma Scale (GCS) score follow-up
	Sudden changes in the patient's general condition
	All invasive procedures
	Vital signs
	What was done in external institutions?
	Every finding, procedure, and care application related to the trauma patient is recorded on the nurse observation form.
What would you like to say about the suitability and contribution of the nurse observation forms you use in the ED to record-keeping?	Waste of time
	Workload and no legal sanction
	Must have a field-specific form
	Not enough

ED: Emergency department

Evaluation of the circulatory system in trauma patients is crucial for effective nursing care planning (12,18). In our study, although ED nurses performed circulatory evaluations in only 0.4% of cases, they documented nursing entries related to the circulatory system in 56% of cases. Despite the high rate of nursing interventions, the low rate of patient evaluations implies that nurses are not consistently basing their practices on patient evidence. The numerical deficiency in the practice of evaluating circulation, especially in such a critical aspect of emergency nursing, represents a negative outcome in terms of implementing evidence-based emergency nursing interventions.

In this study, within the context of hemodynamic regulation, the highest rate of application by ED nurses was intravenous fluid therapy. Moreover, the definition of nurses' responsibilities concerning fluid therapy in the NR, which states that "(ED nurses) initiate, monitor, and record infusion and transfusion procedures in accordance with the institution's policies and guidelines," aligns with the research findings (8). This outcome is attributed to the necessity of establishing peripheral vascular access in trauma cases upon the physician's request when they are admitted to the ED. Emergency department nurses must initiate fluid therapy based on the patient's condition and are required to document these procedures for record-keeping purposes.

The explanations provided on this matter are significant in elucidating the perception and attitude of ED nurses regarding the importance of physician's orders. For example:

S.2/N3: "For example, if the case is a serious and complex situation, if we need to act quickly, sometimes we simply record the medications (as per the physician's request) ..." S.2/N1: "...A doctor's request is necessary. For instance, triple antibiotics, tetanus vaccine, etc. You might wonder why they weren't administered. Informing the patient that the doctor's orders, which were not documented, were issued at an external facility explains why they were not administered."

These explanations reveal that, in all circumstances, ED nurses prioritize and attach importance to dependent nursing practices carried out at the physician's request.

**Neurological Evaluation:** Neurological assessment and ongoing monitoring are crucial for preventing secondary brain injuries in trauma cases (6). In this study, neurological injuries were identified in 11% of trauma cases, and multiple traumas were observed in 14% of cases. The GCS serves as an objective and universally accepted tool for evaluating neurological vital signs (6,19). There is also evidence suggesting that alterations in GCS scores among ward patients are precursors to adverse situations, resulting in higher patient mortality rates (20). However, our study found that ED nurses did not calculate the GCS scores for trauma cases. This finding aligns with the research results of Bae and Roh, who reported that ED nurses demonstrated lower proficiency in neurological assessment compared to nurses working in other units, including critical care (21), reinforcing the results of this study.

One of the contradictory findings in the study stems from the statements made by the emergency nurses in the qualitative part of the study. According to the nurses: The state of consciousness is very important in the emergency department. It is important to be able to evaluate the GCS of the patient during the first intervention. GCS is especially important for identifying patients with head trauma. It is then important to assess whether the integrity of other body parts has been compromised. These statements from ED nurses appear to contradict the quantitative findings, highlighting the importance of examining both qualitative and quantitative data in understanding the complete picture. While it is evident from the nurses' explanations that they assess the GCS for all cases upon arrival and, if necessary, re-evaluate it later, there is no recorded documentation of GCS scores in the documents. It is likely that the nurses' statements are related to patients hospitalized in the ED intensive care unit rather than trauma cases.

In this study, ED nurses assessed the size of pupils in only 4 cases but did not examine or record pupillary reactivity in any of the cases. Research indicates that nurses often have a low level of accuracy when interpreting pupil size in relation to cerebellar function (21). Lack of knowledge and experience are reported as the most significant factors affecting nurses' performance in assessing consciousness level (21). Education at the undergraduate level has been shown to improve nurses' tendency to conduct neurological assessments (22). In the present study, it is not surprising that nurses who did not receive emergency nursing training during their undergraduate education were not sensitive to neurological assessments in trauma cases.

Our study found that information about the level of consciousness was limited to the time of arrival, aligning with findings in the literature indicating that nurses often do not monitor the consciousness status of trauma patients (23). It is noteworthy that 18.8% of the cases had injuries related to the CNS, and yet the level of consciousness was not consistently monitored despite multiple trauma cases (14.6%) making up a significant portion of the patient population.

Exposure and environmental control are part of the responsibilities of ED nurses, including undressing patients when necessary (6). Emergency department nurses mentioned that they perform procedures such as changing, cutting, and removing clothes with the assistance of auxiliary nurses. Items found on the patient's body are handed over to the police with a form signed by the nurses. However, there is no recorded documentation in the nurses' records regarding the removal of patients' clothing. This suggests that while ED nurses are aware of and carry out procedures related to exposure and environmental control, documentation completion in this regard is often lacking.

Our study revealed that interventions were predominantly focused on the circulatory system and neurological evaluations during the primary assessment of emergency patients. Aside from these aspects, practices related to the evaluation of emergency patients were either not performed at all or were conducted in limited numbers. When compared to the defined responsibilities of nurses in the NR, which states that "(c) (emergency nurse) performs a rapid physical evaluation of patients, assesses the data, records the results, and notifies

the physician of any deviations from the normal," it can be concluded that emergency nursing practices for 2540 trauma cases were insufficient (8).

Emergency department nurses indicated that they knew how to perform the primary assessment of an emergency patient and trauma cases. They described it using codes such as "triage, vital monitoring, monitoring, vascular access, shock chart, circulation, and CAR (Circulation, Airway, Respiration) application." However, these codes appear to have limited relevance to the primary assessment. Therefore, based on both qualitative and quantitative findings, it can be inferred that ED nurses need to enhance their knowledge about the primary evaluation of emergency patients.

### Discussion on secondary evaluation findings of emergency patients

**Comprehensive Vital Signs Monitoring:** Monitoring and evaluating vital signs are crucial for the early identification of deteriorating patient prognosis. Research indicates that abnormalities in vital signs observed in the ED are associated with worsened outcomes for patients admitted to the ward (24,25). In our study, findings related to fever, pulse, respiration, and arterial blood pressure were predominantly evaluated during the secondary examination. The responsibilities included in the NR overlap with the findings of our study (8). These activities represent dependent nursing interventions, which explains why they were documented after the procedures.

**Fluid Therapy Intervention and Monitoring:** Our study revealed a lack of parallelism between fluid therapy interventions and the monitoring of fluid intake and output. As stated in the NR, one of the responsibilities of ED nurses is as follows: "(h) ...ED nurse monitors and records fluid intake and output" (8). The requirement to record fluid intake and output distinguishes this procedure from others. In our study, fluid therapy was initiated by ED nurses in 36.3% of patients, but they monitored the fluid intake and output of only 0.9% of them. The results of Asfour's research indicate that 35% of fluid balance recorded by nurses in patient files is incorrect, and their knowledge about monitoring fluid balance is moderate (25). It appears that the practices of ED nurses regarding fluid balance are inadequate. The ED is generally considered a busy environment, which can limit the oversight of nursing practices and negatively impact the quality of care.

**Pain Management:** Pain is a common issue in trauma patients; however, studies in various clinical settings reveal that nurses often tend to underestimate rather than overestimate patients' pain levels (26). Literature reports indicate that nurses working in various clinical areas assess pain in approximately 53.6% of cases (27). In contrast, our study found that ED nurses assessed and documented pain in only 4 patients, which does not align with the literature. Additionally, the content analysis of the emergency nursing approach to trauma did not include a definition of "pain and pain assessment," which is consistent with the quantitative findings. Özveren et al. reported that only 63.6% of nurses kept a pain diary (27). These results support our research findings. The ED environment is typically busy, complex, and dynamic. Often, the consciousness level of trauma patients is not sufficient to assess pain during the initial hours after trauma, as interventions related to patient stabilization take precedence. This study's sample consists of examining records created by ED nurses during the initial intervention for trauma cases. Therefore, these factors are believed to influence the pain assessment process in the ED and may negatively impact the research findings.

Within the scope of pain management in the ED, it was observed that 27.6% of cases received pharmacological interventions. The ED nurses' preference for pharmacological methods in pain management aligns with findings in the literature (28,29). Nurse administration of analgesia to patients requires a physician's order, and the high rate of analgesic use by ED nurses is attributed to the necessity of performing and documenting dependent nursing practices.

**Non-pharmacological pain management methods** were not employed by ED nurses in this study. In contrast to our findings, the literature reports that nurses working in EDs use non-pharmacological methods to reduce pain at rates ranging from 10.4% (28). The tendency of ED nurses to work in accordance with physician orders limits their ability to initiate independent nursing interventions. An ED nurse stated, "...to urgently administer the treatment prescribed by the physician and ensure patient stabilization is the primary goal in any case..." (S.1/N4), supporting this perspective.

**Patient History and Head-to-Toe Examination:** In our study, ED nurses asked at least 1 question related to the AMPLE mnemonic (allergies, medications, past medical history, last meal or other intake, and events leading to presentation) to only 1.1% of trauma cases. Sawyer et al. demonstrated that specialist nurses working in a pediatric trauma center can effectively perform tertiary surveys similar to physicians (30). Based on this evidence, the limited number of applications observed in our study may be attributed to a lack of training, and results could potentially improve with the provision of emergency nursing training.

In our study, there were no records of patient histories or nursing procedures related to head-to-toe evaluations. Despite information in the patient automation system indicating that chest tubes were inserted in 33 trauma cases in the ED, it is surprising that this information and the records of chest tube follow-up were not included in the nurse's documents. Consequently, there is an inconsistency between the job description in the NR, which states that "(e) (An emergency nurse) checks chest tubes and other drainage systems, changes drainage bags, and records his/her actions along with his/her observations," and our research findings (8).

In addition, ED nurses' statements on this issue are quite contradictory when compared to the quantitative findings. According to nurses: we document all aspects of the patient's care in the nursing record. When the patient arrives, we document all physical findings. These statements made by ED nurses cannot be supported by the quantitative findings of the study. Implementation of such practices requires extensive documentation. Therefore, it becomes clear that the problem is not just about documentation, but rather a lack of knowledge and training.

**Assessment of Posterior Surfaces:** There is no record of the assessment of the posterior surfaces of trauma cases in the nursing documents. ED nurses tend to adhere to the traditional nursing model, which leads them to perceive the evaluation of patients' physical findings as the responsibility of physicians. This approach had a negative impact on the research findings.

Emergency department nurses stated that they were knowledgeable about the secondary evaluation of emergency patients and used the following codes to define the secondary evaluation of trauma cases: "fluid therapy, administering treatment, stabilization, monitoring, assessing body temperature in cases of hypothermia, conducting examinations, GCS, assessing body integrity, removing clothing, placing the patient on a spine board, preparing a report for belongings, handing over to the police, attention to evidence, personal protective equipment, and privacy." Many of these codes are not directly related to secondary evaluation.

Both the quantitative and qualitative findings of the study indicate that emergency nursing practices with a systematic approach are not consistently applied to trauma cases (30). Emergency department nurses made insufficient efforts in both primary and secondary assessments, largely due to their limited knowledge, education, and skills in emergency nursing. The field of emergency nursing has not yet been formally recognized in undergraduate nursing education in Türkiye, which is believed to have contributed to these negative results.

Our study revealed that dependent nursing practices (such as vital signs monitoring, intravenous treatment, and peripheral vascular access, which are associated with the nursing profession) are commonly performed in the EDs. Conversely, independent nursing practices that could enhance the nursing profession's influence and visibility are rarely executed. Consequently, it can be inferred that traditional nursing practices dominate emergency nursing procedures rather than contemporary practices based on current guidelines.

There are some limitations to our study. First, it includes findings obtained from nursing documents of trauma cases admitted to the ED. Therefore, data related to nursing interventions or activities for other patients treated in the ED could not be included in the study. Another limitation is that the data were collected from a single hospital, potentially limiting the applicability of the findings to other institutions and departments. Finally, the focus of data collection was on Türkiye in general, and the cross-sectional nature of the study may restrict the universal generalization of the results.

### Conclusion

Our research indicates that ED nurses in Türkiye do not consistently follow guidelines for a systematic approach to trauma patients, and there is limited adherence to ENA guidelines in their practices. The study also revealed inadequacies in implementing duties and responsibilities outlined in the NR, and independent practices that could enhance the strength, visibility, and autonomy of the nursing profession are often neglected.

Emergency department nurses in our study emphasized the importance of having received emergency nursing training as a prerequisite for working in the ED, but such training is not widely available in our country. Additionally, nurses suggested that "nurse observation forms" should be updated to include specific ED-related applications. The research results highlight the necessity of emergency nursing education to ensure the delivery of higher quality and more effective nursing care, especially in trauma cases.

### Acknowledgement

Not applicable

### Funding sources

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the study reported in this paper.

### Ethical statement

The research was initiated upon Ondokuz Mayıs University (OMU) Ethics Committee decision numbered B.30.2.ODM.0.20.08/264 and the institutional permission numbered 15374210-302.08.01-E.76852.

Notice: The participants were informed that their identities would be kept confidential at every stage of the research; they could withdraw from the research without giving any reason during the research, and they would not have any financial benefit from the research.

The research is derived from a doctoral dissertation titled "Emergency Nursing Approaches to Trauma Cases in a University Hospital Emergency Service: A Retrospective Study."

## Conflicts of interest

The authors declare that they have no competing interests.

## Author contributions

Conceptualization: AA, MA; Research design: AA, MA; Data collection and/or processing: AA, MA; Analysis and/or interpretation: AA, MA; Literature review: AA, MA; Writing up the original draft: AA, MA; Review and editing: AA, MA.

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## How to Cite:

Aydemir A, Ayyıldız M. Emergency nursing approach to trauma cases in Türkiye. *J Res Dev Nurs Midw.* 2024;21(1):24-30.