


RESEARCH ARTICLE (ORIGINAL) 

Nursing interventions in emergency departments: Nurses' perspectives

Intervenções de enfermagem no serviço de urgência: Perspetivas dos enfermeiros
Intervenciones de enfermería en el servicio de urgencias: Perspectivas de los enfermeiros

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Abstract**Background:** The evolution of emergency departments added further complexity to the framework of nursing interventions. Understanding this evolution is vital to efficiently manage resources and ensure patients the provision of safe care.**Objective:** The objective of this study is to describe nursing interventions provided to patients in emergency departments.**Methodology:** A qualitative approach using a descriptive and exploratory methodology was employed by this study, involving two consecutive stages - (1) identification of nursing interventions using non-participant observation, semi-structured interviews, and a questionnaire, and (2) content analysis of the identified interventions.**Results:** A total of 1,429 interventions were identified and categorized into 24 dimensions. The most commonly observed interventions were Administration of medication, Clinical assessment, Collection of biological specimens, Management of clinical information, and Maintaining the department's functioning.**Conclusion:** The identified interventions show nurses' broad range of practices that surpass direct patient care, encompassing the management of workflows and clinical information. The study findings emphasize the significance of further understanding nursing interventions for the optimal management of emergency departments.**Keywords:** nursing; critical care nursing; emergency nursing; nursing care; therapeutics; hospital emergency service**Resumo****Enquadramento:** A evolução dos serviços de urgência tornou complexo o enquadramento das intervenções realizadas pelos enfermeiros. Compreender esta evolução é essencial para gerir eficientemente estes recursos e garantir cuidados seguros às pessoas.**Objetivo:** Descrever as intervenções de enfermagem implementadas aos clientes no serviço de urgência.**Metodologia:** Estudo qualitativo com uma abordagem descritiva e exploratória, que ocorreu em duas etapas sequenciais - (1) identificação das intervenções de enfermagem através da observação não participante, entrevista semiestruturada e questionário e (2) análise de conteúdo às intervenções identificadas.**Resultados:** Identificaram-se 1429 intervenções que foram categorizadas em 24 dimensões. As mais comuns incluíram a Administração de fármacos, a Avaliação clínica, a Colheita de amostras biológicas, a Gestão da informação clínica e a Manutenção do funcionamento das unidades.**Conclusão:** As intervenções identificadas revelam uma ampla gama de práticas que vão além do cuidado direto à pessoa, incluindo a gestão do fluxo de trabalho e da informação clínica. Os resultados do estudo destacam a importância de uma melhor compreensão dessas intervenções para a otimização dos serviços de urgência.**Palavras-chave:** enfermagem; enfermagem de cuidados críticos; enfermagem em emergência; cuidados de enfermagem; terapêutica; serviço hospitalar de emergência**Resumen****Marco contextual:** La evolución de los servicios de urgencias ha complicado el marco de las intervenciones realizadas por el personal de enfermería. Comprender esta evolución es esencial para gestionar de forma eficiente estos recursos y garantizar unos cuidados seguros para las personas.**Objetivo:** Describir las intervenciones de enfermería aplicadas a los pacientes del servicio de urgencias.**Metodología:** Estudio cualitativo con enfoque descriptivo y exploratorio, que se desarrolló en dos etapas secuenciales - (1) identificación de las intervenciones de enfermería mediante observación no participante, entrevista semiestructurada y cuestionario, y (2) análisis de contenido de las intervenciones identificadas.**Resultados:** Se identificaron un total de 1429 intervenciones, clasificadas en 24 dimensiones. Las más comunes incluían la Administración de fármacos, la Evaluación clínica, la Recogida de muestras biológicas, la Gestión de la información clínica y el Mantenimiento del funcionamiento de la unidad.**Conclusión:** Las intervenciones identificadas muestran un amplio abanico de prácticas que van más allá de la atención directa a la persona, incluida la gestión del flujo de trabajo y de la información clínica. Los resultados del estudio destacan la importancia de comprender mejor estas intervenciones para optimizar los servicios de urgencias.**Palabras clave:** enfermería; enfermería de cuidados críticos; enfermería de urgencia; atención de enfermería; terapéutica; servicio de urgencia en hospital**How to cite this article:** Gomes, J., Tinoco, C., Almeida, C., Ribeiro, L. P., Queirós, C., & Neves, H. (2023). Nursing interventions in emergency departments: The nurses' perspectives. *Revista de Enfermagem Referência*, 6(2), e29896. <https://doi.org/10.12707/RV123.36.29896>

Introduction

The Instituto Nacional de Estatística (2021) predicts an increase in the utilization of Portuguese emergency departments due to Portugal's rise in chronic illnesses and longer life expectancy, albeit accompanied by lower quality of life. Despite measures such as the investment in call centers to provide guidance in low-priority healthcare situations, these remain insufficient to resolve the problems of chronically ill patients (Nunes, 2020; Yang et al., 2022).

Although, in theory, emergency departments are meant to deal only with emergencies, in reality, they address more than that. In practice, emergency departments attend to chronic problems left undressed by other departments of the Portuguese National Health Service. This situation poses a challenge to the management and provision of care (Pereira et al., 2019).

Healthcare institutions strive to have adequate and proportional material and human resources to meet the existing care needs. Various health professionals work in emergency departments either on a full-time or part-time basis, including medical doctors, technicians, support staff, and nurses (Fronreira et al., 2019). While it may be easy to describe the work of certain health professionals, identifying interventions performed by nurses working in emergency departments can be challenging due to nurses' adaptability into multiple specialties.

Due to the technological and scientific advancements in recent decades, nursing has significantly developed into a highly skilled, qualified, and relevant healthcare profession (Fronreira et al., 2019). Consequently, an essential aspect of effective nurse management is to comprehend nurses' roles. This comprehension enables the staffing of nurses to be adjusted based on the number and complexity of patients, ensuring that the quality of care provided is maintained (Báo et al., 2021).

The shortage of nurses, high volume of patient admissions, and inadequate management of patient flow in emergency departments, together with the increase in the number of nurses submitting non-liability disclaimers as they feel incapable of meeting their patients' needs, has been newsworthy since before the COVID-19 pandemic (Ordem dos Enfermeiros, 2022). Even so, the funding of healthcare institutions remains limited, relying on careful resource management to maintain sustainable care provision. Furthermore, demonstrating the need for health professionals poses a significant challenge in emergency departments, which require considerable investments but do not offer immediate or measurable returns (Báo et al., 2021).

As healthcare systems, emergency departments, and the nursing profession continue to evolve, it is increasingly important to describe the nursing interventions provided to patients in emergency departments. Given the lack of previous research in this area, this exploratory study aims to describe the nursing interventions provided to patients in emergency departments.

Background

Portugal's aging population has caused a notable rise in morbidity and mortality rates linked to the higher incidence of chronic illnesses and related complications (Instituto Nacional de Estatística, 2021). This change has created the need for emergency services to adjust due to the challenges of shifting from an acute care-based model to interventions previously associated with the care provided to the elderly (Formentin et al., 2021). Emergency care departments were created to manage reversible conditions that lead to vital function failure. Today, these healthcare services are increasingly utilized by the general population (Pereira et al., 2019).

The institutions that host these services are accountable for ensuring that care standards are met. However, on some occasions, these institutions require their professionals to exert additional efforts due to the array of responsibilities, implemented interventions, and administrative work involved (Silva et al., 2019).

Nurses are part of these health professionals and provide care in various contexts. They are present at the first level of action in emergency and triage rooms and at the second level in nurses' offices and observation units (Mendonça & Lopes, 2020). Thus, nurses perform a broad range of care actions, extending from the most complex interventions in life-threatening situations to addressing the simplest health complaints expressed by their patients (Mendonça & Lopes, 2020).

Developing nurses' skill to address these problems remains a key factor in improving the quality of the interventions implemented in healthcare institutions, both technically and in terms of promoting humanized care (Silva et al., 2019). A nursing intervention is an action carried out by nurses to assist a patient in achieving a specific outcome or solving a health problem. To accomplish this, nurses use their knowledge and clinical judgment to administer a variety of treatments (Butcher et al., 2018).

Nursing activity can be performed autonomously, such as initial nursing assessments, nursing diagnoses, and the implementation of nursing interventions, or interdependently, encompassing the administration of medication, collection of biological specimens, or other therapeutic activities (Esteves & Amaral, 2023). By incorporating these two aspects of nursing activity into their clinical practice, emergency nurses play a crucial role in implementing effective interventions at the exact moment the patient needs them.

Various classifications have been developed to structure nursing interventions. Two common examples are the "Nursing Interventions Classification" (Butcher et al., 2018) and the "International Classification of Nursing Practice" (International Council of Nurses, 2019). The former consists of more than 500 interventions that describe and document nursing care, such as "pain management" or "fluid management," while the latter functions as a clinical terminology with concepts and descriptions for the various terms that comprise it.

Decision making about the implementation of these interventions requires a balance between clinical safety, efficiency, and effectiveness. Determining which interventions to implement and when must be an evidence-based process (Silva et al., 2019). Therefore, nurses use the best available evidence to guide their decisions and evaluate the effectiveness of their interventions, resulting in improved health indicators and reducing the costs of care (Melnik and Fineout-Overholt, 2022).

Despite the significant importance of nursing interventions for emergency departments, there is a gap in the scientific literature that addresses this issue in depth. Nursing interventions are essential to ensure effective and high-quality care, but the lack of studies describing them in detail limits the understanding of these interventions and their impact on people's health (Esteves & Amaral, 2023).

Therefore, the development of studies to fill this gap is essential to provide a better understanding of nursing interventions and their contribution to patient health. Such knowledge is fundamental for improving the management of healthcare services, promoting nurses' continuing education, and guiding healthcare policies. Hence, this study aims to contribute to filling this gap by exploring the nursing interventions implemented in emergency departments and outlining the implications for clinical practice and decision making.

Research question

What interventions do nurses perform in emergency departments?

Methodology

This qualitative study, which follows a descriptive and exploratory approach, was conducted in two consecutive stages: (1) identification of all the nursing interventions performed in emergency departments and (2) content analysis of the identified interventions.

The study was conducted following the guidelines from the Consolidated Criteria for Reporting Qualitative Research (COREQ).

The research took place in the emergency department of a multi-purpose district hospital in northern Portugal. To qualify for this study, it was necessary to be a nurse working in the emergency department where the study was conducted and to agree to participate voluntarily. Four researchers with a Master's degree in Nursing - two men and two women responsible for collecting the study's data, integrated the emergency department team during the data collection period, having prior known relationships with most of the participants, a fact which might have created biases. Thus, the researchers received training to reduce this possibility.

Data were collected from August 2021 to August 2022. During this period, the nursing team varied from 119 to 122 members, and 52 of them agreed to participate in

the study following an email-based invitation.

Non-participant observation, in-person semi-structured interviews, and completion of a questionnaire were the three strategies outlined to optimize the identification of the nursing interventions. The combination of these strategies allowed for a more comprehensive understanding of the phenomenon under study, overcoming certain limitations of the individual methods and improving the validity of the qualitative research (Flick, 2017).

The method of non-participant observation following an observation script helped describe the nurses' activities during their shift, something the nurses might feel difficulties describing themselves. Researchers conducted initial observations in pairs, with potential inconsistencies being discussed and shared among all researchers.

The semi-structured interview method, employing open-ended questions, allowed detailed exploration of the interventions performed in specific domains of nursing activity. It was implemented separately or as a supplement to non-participant observation to explore the observed interventions. The researchers received prior training in this technique, utilizing the same methodology adopted in participant observation. The interview was conducted in an isolated room or a more private location within the department, at the participant's convenience, with the goal of maximizing nurse participation without compromising the provision of care.

The observation and the interview were followed by a reading of the researcher's field notes based on a form created for that purpose. No audio-visual means were used to capture information, and no limit was placed on the duration of these moments. The observation and interview moments, chosen randomly to avoid selection bias, were always initiated by the researchers at a convenient time, contacting the participants on duty and inviting them to participate according to their availability.

The use of the questionnaire allowed participants to describe less frequent interventions without the need for a researcher to be present. The Microsoft Forms tool was used to create the questionnaire form, which was made available during the data collection period, with a description of the study objectives and the following open-ended question: "Using the language that seems most appropriate to you, please describe the care you have provided during your current shift."

Participants' involvement was not limited to one technique or moment of data collection. This study assumes that nurses provide different types of care at different times and care units. Thus, the same nurse may have been approached multiple times for an interview or observation and completed the questionnaire several times.

The results of the three data collection strategies were gathered in a database within a web application developed for content analysis. The researchers used an application specifically developed for this project that enabled remote and simultaneous data analysis.

The researchers employed the content analysis method (Bardin, 2009) to analyze the data. Based on the study objectives, the corpus of analysis was created by reading each of the texts resulting from the data collection. Next,

the researchers selected the recording units consisting of text fragments that, in some cases, required contextualization to become comprehensible.

The researchers allocated the recording units to two category levels: first, to a more specific action that can be objectified and measured, and then to a more abstract dimension of care delivery.

To ensure the reliability and validity of the results, two researchers carried out the content analysis process independently. Any conflicts were discussed between the two researchers involved, or a third researcher was consulted to resolve the disagreements. To safeguard analysis consistency, the four researchers jointly practiced extracting and coding five excerpts.

Data collection and categorization occurred simultaneously. The first stage ended when data saturation was reached due to the increase in the number of recording units without the creation of new categories.

This study was conducted with the approval of the Health Ethics Committee of the hospital where the study took place (reference 76_2021). Written informed consent was obtained from all participants in advance, and the researchers verbally repeated it in each interaction with the participants.

No data was gathered on the study participants, the patients of the emergency department, the emergency

department itself, or the time the study was conducted. This option implies that there is no way to identify the participants beyond the inclusion criteria. Nurses could review any instance of data collection by using an anonymized code generated specifically for that purpose. There were no withdrawals of informed consent during or after the data collection process. However, the moments or reasons for declining requests for interviews or observations were not recorded to reduce potential discomfort between the nurses and the researchers.

Results

The study included 24 non-participant observations, 59 semi-structured interviews, and 17 responses to the online questionnaire.

After conducting the content analysis process, the researchers identified 1,429 interventions carried out by nurses in the emergency department. After analysis, the interventions were classified into specific categories based on the actions carried out by the nurses ($n = 294$). Subsequently, these interventions were allocated to dimensions corresponding to particular areas of focus for nurses during their clinical practice ($n = 24$). These are illustrated in Table 1 according to the order of representativeness.

Table 1*Identified Dimensions and Examples of Categories*

Dimensions	RU	Categories	Examples of Categories	RU
Medication and blood products administration	195	31	Administration of intravenous medication	26
			Preparation of medication	22
			Search in the information system about medication pending administration	6
Clinical assessment	149	26	Assessment of vital signs (HR, SpO2, BP or temperature)	58
			Assessment of adverse medication effects	13
			Patient monitoring	8
Collection of biological specimens	102	17	Collection of blood samples	30
			Collection of respiratory swab specimens	23
			Collection of urine specimens	11
Management of clinical data	97	10	Management of clinical data in temporary electronic clinical record files	18
			Asking patients for clinical data	17
			Receiving clinical data	15
Maintaining the department's functioning	74	12	Verifying the department's functioning	35
			Refilling the department's supplies	19
			Contacting the cleaning team	5
Patient handling	67	16	Patient transferring from one surface to another	19
			Patient positioning	28
			Patient lifting	4
Elimination	66	18	Insertion of a urinary catheter	21
			Diaper changing	13
			Assessment of bowel elimination	3
Relationships with patients and families	66	13	Establishing a relationship with the patient	13
			Informing the patient about the department's circuits and waiting times	9
			Informing the accompanying person/s about the patient's clinical condition	8
Patient referral	64	16	Management of the availability of inpatient beds	20
			Contacting clinical secretaries for patient admission	9
			Notifying the family of the patient's discharge	5
Vascular accesses	56	9	Insertion of peripheral venous catheters	30
			Removal of peripheral venous catheters	10
			Optimization of peripheral venous catheters	9
Liaison between different professional teams	45	10	Communicating with the medical team about the patient's clinical progress	18
			Communicating with the medical team about potential errors in patient flow	9
			Informing the support staff of tasks pending	8
Patient identification and location within the department	34	9	Assigning a patient to a bed in the department	13
			Identifying the patient on a stretcher	13
			Inserting the patient into the information system	5

Note. RU = Recording Units.

Despite reduced representativeness, other dimensions were also highlighted, such as Ventilation and oxygenation ($n = 34$), Hygiene and comfort measures ($n = 33$), Assistance with medical procedures ($n = 28$), Manchester triage ($n = 25$), Feeding and digestion ($n = 24$), Safeguarding patient's

personal possessions and valuables ($n = 16$), Clinical emergency ($n = 12$), Students' and new professionals' supervision ($n = 9$), and Dying care ($n = 4$).

While observing nursing interventions, the researchers made relevant field notes regarding the context of care

delivery, which describe the challenges of locating patients within the emergency department, the systematic interruptions of nurses carrying out tasks by patients or colleagues, and the difficulties in managing the clinical information of a large number of patients. Nurses record the care actions in the institution's healthcare informatic system and on a temporary Microsoft Excel database used to monitor the location, clinical information, and patients' discharge status. The term "allocation" is commonly used to describe the process of deciding the location of a newly admitted patient in the department, which can either be in a designated inpatient bed or somewhere within the department without numbering.

Discussion

The study's findings highlight the heavily interdependent area of nursing activity centered around the medical prescription of medication and the collection of biological specimens. This result is consistent with the method of care organization that seems to govern emergency departments, which largely follow the biomedical model. Patients go to these units to receive medical attention to address urgent health issues (Mendonça and Lopes, 2020), which complies with the mission of emergency departments to provide predominantly curative health care and address situations of sudden symptoms onset or compromise of at least one vital organ (Moura, 2017). Similarly, the study's findings underscore the autonomous nursing interventions of assessment and treatment of symptom indicators, such as vital signs and patient complaints. Upon admission to the emergency department, the nursing staff performs a swift preliminary assessment of the patient, including the patient's clinical history, analysis of vital signs, and severity screening, and establishes the order of treatment (Doenges et al., 2019). Frequent or periodic patient monitoring is already a routine procedure in various settings, but it is predominantly linked with critically ill patients. Thus, nurses monitor vital signs like heart rate, blood pressure, respiratory rate, pain, and other related symptoms (Berman et al., 2018). Other autonomous nursing interventions, such as the optimization of ventilation by positioning patients, the prevention of pressure ulcers, the patient's hygiene and comfort, and the management of information, are also highlighted in the study's findings.

The Portuguese Regulation of the Specific Competencies of the Nurse Specialist in Medical-Surgical Nursing in the area of Critical Care Nursing (Ordem dos Enfermeiros, Diário da República, 2018) describes the numerous essential competencies that nurses working in emergency departments must possess. These skills relate to early detection, stabilization, maintenance, and recovery of acute illnesses, the prevention of complications and adverse events resulting from advanced means of intervention, the anticipation of instability, the differentiated management of the critically ill patient's pain and well-being, and the management of interpersonal communication with the patient, family, or caregiver (Diário da República, 2018).

These competencies align with the results and the specific interventions identified in this research.

Nursing activities focusing on the management of clinical information and patient location within the emergency department were also highlighted. The frequency of these results, which can constitute a single stage in an intervention, may signal the overcrowding of the emergency units and the presence of poorly developed information systems, which hinder quick and effective access to essential information that professionals require to perform their duties. These problems have been evident for decades and have clinical implications for nursing practice and patient outcomes (Eriksson et al., 2018).

By correlating these issues with the most frequent categories in the study, it becomes inevitable to relate the nursing interventions most frequently performed in emergency departments, such as administering medication and collecting biological specimens, to the heightened possibility of errors associated with overcrowded services and frequent interruptions to nursing procedures (Hayes et al., 2015). Moreover, nurses noted other difficulties. The recurring theme of locating patients within the department, identifying stretchers with the patient's name, or verbalizing the systematic need to verify patient identification confirms the perception of overcrowding in Portuguese emergency departments (Matos, 2022; Vilhena, 2018).

The use of a temporary Microsoft Excel database to manage patients' names, location, clinical data, and discharge status from the emergency department was also frequently mentioned in this context. The significant turnover of patients in emergency departments made it apparent that the computer system implemented in the institution was insufficient to oversee nursing care. This result contradicts the increasing importance of effective clinical information management for guaranteeing healthcare safety. Accordingly, Mendonça and Lopes (2020) defend that information is an increasingly valuable resource that fosters better clinical decisions and measures health indicators. Another aspect highlighted in this study's findings is the need for institutional processes to be improved, as nurses are compelled to solve problems regarding the exams, discharges, and observations performed by other health professionals. The term "forgotten" is used to describe the status of patients who required observations or procedures but were overlooked. To solve the situation of these patients, nurses have to identify and contact the health professional responsible for conducting the required observation or procedure. Thus, nurses seem to have taken on the responsibility of managing the patient's journey within the emergency department, minimizing inefficiencies by acting as a communication link within the multidisciplinary team. This finding is consistent with the results of Costa and Gaspar (2017), who discovered that the Communication and Leadership competency dimension aligns with the competency profile of emergency nurses. This study also identified several nursing interventions related to coordination and communication with other team members. These interventions involve transmitting relevant information about the patient's condition and participating in joint discussions about

care plans (Doenges et al., 2019).

Finally, to overcome the challenges mentioned earlier, this study identified an aspect of nursing interventions in emergency departments consistent with classical theories of care that involves providing emotional support to patients and family members, disclosing information about diagnoses, treatments, and care at home, and ensuring adequate resources (Dağ et al., 2019). This dimension of care is often utilized to address the risk of life-threatening circumstances and alleviate the healthcare abandonment that older adult patients and their family members experience at home and seek to ease at the emergency department (Pereira et al., 2019).

Study Limitations: Content analysis subjectivity, researchers' familiarity with the participants, and specificity of the study location may reduce the generalization of the findings. Nevertheless, the implemented strategies to mitigate these issues likely enhance the strength of this study's conclusions. Given that data collection used three different strategies, future research to assess convergence or divergence through result triangulation is recommended. Since participants were not described due to data protection, it is not possible to allocate the study's results to factors such as professional experience.

Conclusion

This research offers a comprehensive and informative depiction of the nursing interventions implemented in emergency departments, shedding light on essential attributes that are frequently ignored. Based on the study's analysis, it is possible to observe that nursing interventions extend beyond direct patient care and involve a range of actions that are key for upholding operational efficiency and service safety.

These findings underscore the necessity for greater focus on these factors during training and clinical practice. They also emphasize the importance of measures to assist nurses and reduce the impact on care for patients and families. Nevertheless, this study is just an initial step in the right direction. It is essential to understand further the impact of these tasks on nurses' work hours and how they can be enhanced to promote the efficacy and quality of care in emergency departments.

This study's conclusions also highlight the significance of nurses as essential agents that impact the provision of care and the safety and effectiveness of emergency departments. Nurses' complex interventions challenge the traditional limitations imposed on the nursing profession, and as the future of healthcare unfolds, it is imperative to value, optimize, and comprehensively understand every aspect of these health professionals' crucial roles.

Author contributions

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