Quality of care in the emergency department

Emergency nursing care through the perspectives of healthcare staff and patients

Henrik Duhalde

Faculty of Health, Science and Technology

Nursing Science

DOCTORAL THESIS | Karlstad University Studies | 2026:51

Quality of care in the emergency department

Emergency nursing care through the perspectives of healthcare staff and patients

Henrik Duhalde

DOCTORAL THESIS | Karlstad University Studies | 2026:51

Quality of care in the emergency department - Emergency nursing care through the perspectives of healthcare staff and patients

Henrik Duhalde

DOCTORAL THESIS

Karlstad University Studies | 2026:51

urn:nbn:se:kau:diva-112392

ISSN 1403-8099

ISBN 978-91-7867-759-7 (print)

ISBN 978-91-7867-760-3 (pdf)

https://doi.org/10.59217/oufv6706

© The author. This work is licensed under CC BY 4.0 (https://creativecommons.org/licenses/by/4.0/), unless otherwise stated.

Distribution:
Karlstad University
Faculty of Health, Science and Technology
Department of Health Sciences
SE-651 88 Karlstad
+46 54 700 10 00

Print: Universitetstryckeriet, Karlstad 2026

WWW.KAU.SE

Progress, far from consisting in change, depends on retentiveness. Those who cannot remember the past are condemned to repeat it.

George Santayana (1863–1952)

Abstract

Background: Deficiencies in quality of care (QoC) remains a challenge in emergency departments (EDs), and there is a need for research examining QoC at the intersection of emergency nursing care and the unique conditions of the ED setting.
Aims: The overall aim of the thesis was to examine and explore QoC in EDs from the perspectives of healthcare staff and patients.
Methods: The thesis comprises four papers, with the results of each paper contributing to the design of the subsequent paper and to the overall aim. Paper I was a scoping review. Paper II was a qualitative interview study with a phenomenographic approach. Paper III was an observational study, and Paper IV was a cross-sectional study using a survey instrument.
Results: Paper I summarised a substantial evidence base of MNC in EDs, while Paper II addressed a gap in how Registered Nurses (RNs) perceived nursing care, missed nursing care (MNC) and QoC as a whole in the ED. RNs perceived their nursing care responsibilities hierarchically, with fundamental care being provided conditionally relative to medical/technical care, and identified patient and organisational risk factors for MNC and decreased QoC (Paper II). These perceptions were in line with the observations in Paper III. Medical/technical care was performed more often than fundamental care, and physical and psychosocial needs were the types of fundamental care most often omitted. Only medical/technical care activities fluctuated with crowding. From the patients' perspective, QoC was rated lower among those with greater fundamental care needs and longer ED length of stay (Paper IV).
Conclusions: This thesis provides knowledge about QoC in EDs. MNC in the ED is common and associated with socio demographic characteristics and organisational factors, including crowding and care delivered in shared patient areas, with physical and psychosocial needs being omitted most often. RNs perceived nursing care hierarchically, prioritising medical/technical over fundamental care, a pattern reflected in staff activity rates. Crowding was linked to reduced QoC, particularly among patients with greater fundamental care needs and longer ED length of stay.

Keywords: Emergency department, Quality of care, Registered Nurse, Fundamentals of Care framework, Missed nursing care, Emergency nursing

Svensk sammanfattning

Bakgrund: Bristande vårdkvalitet utgör fortfarande en utmaning på akutmottagningar, och det finns ett behov av forskning som undersöker vårdkvalitet i skärningspunkten mellan omvårdnad och akutmottagningens unika förutsättningar.
Syfte: Avhandlingens övergripande syfte var att undersöka och utforska vårdkvalitet på akutmottagningar utifrån hälso- och sjukvårdspersonalens samt patienternas perspektiv**.**
Metod: Avhandlingen omfattar fyra delarbeten, där resultaten från varje delarbete bidrog till utformningen av det efterföljande delarbetet och till det övergripande syftet. Delarbete I var en scoping review. Delarbete II var en kvalitativ intervjustudie med fenomenografisk ansats. Delarbete III var en observationsstudie, och delarbete IV var en tvärsnittsstudie där en enkät besvarades.
Resultat: Delarbete I sammanfattade ett omfattande evidensunderlag om utebliven omvårdnad, medan delarbete II adresserade en kunskapslucka avseende hur legitimerade sjuksköterskor uppfattade omvårdnad, utebliven omvårdnad och vårdkvalitet som helhet på akutmottagningen. Sjuksköterskorna uppfattade sitt omvårdnadsansvar som hierarkiskt ordnat, där medicinsk/teknisk vård prioriterades högre är fundamental vård, vidare identifierade de patientrelaterade och organisatoriska riskfaktorer för utebliven omvårdnad och försämrad vårdkvalitet (delarbete II). Dessa uppfattningar överensstämde med resultatet i delarbete III. Medicinsk/teknisk vård, till skillnad från fundamental vård, utfördes oftare och varierade med crowding. Vårdkvaliteten skattades lägre av patienter som hade fler fundamentala vårdbehov och som hade en längre vistelsetid på akutmottagningen (delarbete IV).
Slutsatser: Denna avhandling bidrar med kunskap om vårdkvalitet på akutmottagningar. Utebliven omvårdnad på akutmottagningar är vanligt förekommande och är associerad både med patienters sociodemografiska faktorer och organisatoriska faktorer. Sjuksköterskorna uppfattade att omvårdnaden sågs som hierarkisk, och de prioriterade medicinsk/teknisk vård framför fundamental vård, ett mönster som återspeglades i personalens aktiviteter. Crowding var associerat med försämrad vårdkvalitet, särskilt bland patienter som hade fler fundamentala behov och längre vistelsetid på akutmottagningar.

Original papers

I. Duhalde, H., Bjuresäter, K., Karlsson, I., & Bååth, C. (2023). Missed nursing care in emergency departments: A scoping review. *International Emergency Nursing*, *69*, 101296. https://doi.org/10.1016/j.ienj.2023.101296

II. Duhalde, H., Bååth, C., Hommel, A., & Bjuresäter, K. (2025). Emergency Nurses' Perceptions of Nursing Care in an Emergency Department: A Phenomenographic Study. *Journal of Emergency Nursing*, *51*(5), 840–849. https://doi.org/10.1016/j.jen.2025.03.018

III. Duhalde, H., Hommel, A., Bjuresäter, K., & Bååth, C. (2026). An Exploratory Study of Fundamental Care Needs and Nursing Activities in the Swedish Emergency Department Setting. *Journal of Advanced Nursing*, https://doi.org/10.1111/jan.70700

IV. Duhalde, H,. Pavedahl, V., Bjuresäter, K., Sävman, L., Johansson. A, Bååth, C. & Hommel, A. (2026). *Measuring Emergency Department Patients' Perceptions of Quality of Care Through Fundamental Care Needs: Instrument Development and Testing*. Submitted.

Reprints of papers (I-III) were made under the CC BY 4.0 license.

Abbreviations

AN	Assistant nurse
ED	Emergency department
EMS	Emergency medical service
IOM	Institute of Medicine
ILC	International Learning Collaborative
EDLOS	Emergency department length of stay
MNC	Missed nursing care
NAM	National Academy of Medicine
OECD	Organisation for Economic Co-operation and Development
OR	Occupancy rate
QPP	Quality from the Patients' Perspective
RN	Registered Nurse
WHO	World Health Organization
QoC	Quality of care
QPP-FoC-ED	Quality from the Patient Perspective – Fundamentals of Care – Emergency Department

TABLE OF CONTENTS

INTRODUCTION **1**

BACKGROUND **2**

QUALITY OF CARE 2
THE EMERGENCY DEPARTMENT CONTEXT 4
Contextual factors *5*
Patients in emergency departments *7*
EMERGENCY NURSING CARE 8
Fundamental care *10*
Medical / technical care *11*
ERRORS OF OMISSION IN NURSING CARE 13
Missed nursing care *14*
Missed nursing care in the ED *15*

RATIONALE **17**

OVERALL AND SPECIFIC AIMS **18**

METHODS **19**

THEORETICAL STANCES 19
DESIGN 20
PAPER I 22
Data collection *22*
Data analysis *23*
PAPERS II, III AND IV 23
Setting *23*
Participants *24*
Data collection *31*
Data analysis *34*

ETHICAL CONSIDERATIONS **37**

ETHICAL APPROVALS **38**

RESULTS **39**

PAPER I 39
PAPER II 41
PAPER III 42
PAPER IV 43
SYNTHESIS OF RESULTS 49

DISCUSSION **50**

STRUCTURE 50
PROCESS 51
OUTCOME 53
METHODOLOGICAL DISCUSSION 54
CONCLUSION 59
CLINICAL IMPLICATIONS 60
FUTURE RESEARCH 61
ACKNOWLEDGEMENTS 62
REFERENCES 64

INTRODUCTION

The origins of this PhD project date back to well before 2021, when I enrolled as a PhD student. While working as a registered nurse (RN) in the emergency department (ED) in 2013, two dissonant perceptions soon became evident. On the one hand, there is likely no more fulfilling role for an RN to pursue than nursing in the ED. On the other, it must be acknowledged that one will occasionally fail to meet the care needs of the patients one is responsible for. It was not until later that I became aware that this recurring experience – the failure to meet patients' care needs – was an established concept comprising an entire field of research: the omission of nursing care.

The focus of this PhD project is to increase the knowledge base regarding quality of care (QoC) in the ED by examining care provided by RNs and errors of omission – that is, missed nursing care (MNC). MNC is defined as any aspect of required patient care omitted in part, in whole or delayed (Kalisch, 2006; Kalisch et al., 2009). Along with related concepts, MNC has emerged as an important concept that has been thoroughly explored in hospital ward settings. The results of that research indicate that MNC is a prevalent phenomenon with a harmful impact on patient safety and QoC, manifested through its effects on a variety of patient needs and nursing staff (Azzellino et al., 2025; Chaboyer et al., 2021). In medical and surgical ward settings, the systematic exploration of MNC has made this problem visible, thereby creating conditions for targeted improvements in QoC and patient safety. In the ED, however, this process has yet to occur, leaving a clinically significant gap with potential consequences for both patients and nursing staff – a gap this PhD project aims to address.

BACKGROUND

Quality of care

The conceptualisations of QoC advanced by the Institute of Medicine (IOM), later the National Academy of Medicine, and by the World Health Organization (WHO) are both rooted in Donabedian's (1988, 2005) seminal framework of structure, process, and outcome. *Structural quality* encompasses attributes of the care setting, such as material resources, human resources and organisational arrangements. *Process quality* refers to what is done in relation to giving and receiving care, including the activities of both patients and practitioners (e.g. physicians or RNs). The *outcome* category denotes the effects of care, based on a broad definition of health status that includes patient satisfaction (Donabedian, 1988, 2005).

The IOM and the WHO play central roles in advancing conceptual and operational frameworks globally for quality improvement across diverse healthcare settings. The IOM defines QoC as 'the degree to which healthcare increases the likelihood of desired health outcomes and is consistent with current professional knowledge' (IOM, 1990). This definition has been adopted by the WHO (2006, 2018a).

The IOM (2001, pp. 39-40) proposed six specific aims that, if addressed and improved would lead to improvement in healthcare systems (Table 1).

Table 1. The IOM's six domains for improvement in healthcare systems.

Safe	Avoiding injuries to patients from the care that is intended to help them.
Effectiveness	Providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and overuse).
Patient-centred	Providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions.
Timely	Reducing waits and sometimes harmful delays for those who receive and those who give care.
Efficient	Avoiding waste, in particular waste of equipment, supplies, ideas, and energy.
Equitable	Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socio-economic status.

The WHO adopted these six dimensions of quality in 2006 (World Health Organization, 2006) and further added the dimension of *integrated care* in 2018: 'Providing care that is coordinated across levels and providers and makes available the full range of health services throughout the life course' (World Health Organization, 2018a).

Drawing on Donabedian's work, researchers developed a theoretical model and instrument from a grounded theory study that operationalised Donabedian's process and outcome components (Wilde et al., 1993; Wilde et al., 1994). As QoC is a dynamic concept shaped by patients' preferences, norms, expectations and experiences of the healthcare system, the instrument focuses on the patient's perspective (Wilde et al., 1993; Wilde et al., 1994).

This thesis examines emergency nursing care and QoC in EDs through Donabedian's structure–process–outcome framework. Structural QoC is examined primarily in relation to crowding, operationalised through occupancy rate (OR) and emergency department length of stay (EDLOS), but also in relation to boarding and other structural conditions, for instance clinical experience, specialist nursing

qualifications, knowledge, organisational support and facilities. Process quality is examined in view of emergency nursing care, operationalised through fundamental and medical/technical care. Patients' perceptions of QoC are explored as an outcome of the emergency nursing care provided, complemented by healthcare staff's perceptions of QoC as a consequence of MNC.

The emergency department context

Emergency care in EDs is provided 24 hours a day and involves acute processes, including assessment, stabilisation and treatment initiation (Guly, 2005; World Health Organization, 2018b). A further aspect of emergency care concerns patient's perception of urgency. The American College of Emergency Physicians (2021) defines an emergency service as 'any health care service provided to evaluate and/or treat any medical condition such that a prudent layperson possessing an average knowledge of medicine and health believes that immediate unscheduled medical care is required'.

In the Swedish context, emergency care in EDs is mainly provided by 21 regions and regulated by laws (SFS 2017:30) and regulations (SFS 2017:80). In line with these laws and regulations, the overall aim of an ED is to provide good healthcare on equal terms and to prioritise those most in need of healthcare. In the Swedish context, the National Board of Health and Welfare defines emergency care as interventions that should not wait more than a few hours or up to 1 day. Thus, patients receiving acute care should have a condition that requires immediate care (The National Board of Health and Welfare, 2003). Healthcare interventions must also be performed such that the requirements of good care are met; for instance, they must be of good quality (SFS 2017:30). However, there are no national guidelines instructing how care provided in EDs should be organised. As a result, regional differences in resource allocation and organisation are common. The organisation of emergency care provided in EDs can be broadly categorised based on how patient flows are being managed. Examples include a general patient flow for all patient groups, a flow of patients across different medical specialty sections, or a hybrid organisational structure comprising both a general flow and distinct clinical sections (Swedish Agency for Health and Care Services Analysis, 2018).

The ED differs markedly from other hospital settings in that patients typically do not require a referral from a healthcare provider prior to presentation. Consequently, undifferentiated patient presentations follow both predictable and unpredictable patterns, generating volatile workloads. This thesis explores structural quality in the ED setting, with a particular focus on crowding, operationalised through OR and EDLOS. Crowding has been shown to be associated with decreased safety, timeliness, equity and effectiveness of emergency care (Bernstein et al., 2009). However, the focus of this thesis is specifically on how such structural conditions relate to the process and outcome quality of emergency nursing care.

Contextual factors

Crowding

Crowding in EDs is a phenomenon that has been well-documented both international and nationally (Hoot & Aronsky, 2008; Wretborn et al., 2020). It is defined as occurring 'when the identified need for emergency services exceeds available resources for patient care in the emergency department, hospital, or both' (American College of Emergency Physicians, 2019). Asplin et al. (2003) conceptualises ED crowding through three interdependent components: input, throughput and output. The *input* component covers factors that increase the demand for ED services, including seriously ill or injured patients, emergency referrals, unmet urgent care needs due to limited primary care capacity, patients seeking immediate care for convenience, and safety-net care for vulnerable groups. The rising numbers of older, complex and non-acute patients and under-resourced primary care are additional contributors. The *throughput* component concerns internal ED processes that extend the length of stay, including triage, room placement, diagnostics and treatment, which together cover most of the patient's time in the ED. Staffing levels, patient-to-nurse ratios and diagnostic workflows are important influencing factors of this component. The *output* component involves inefficiencies in admitting or discharging patients, with boarding (i.e. remaining in the ED after admission) identified as the most prevalent cause of crowding. Crowding in EDs has been

designated as a public health issue and is identified as a high-priority research area (Javidan et al., 2021).

OR and EDLOS are among the most frequently studied crowding measures (Badr et al., 2022). The OR is defined as the number of patients in the ED divided by the number of treatment beds where basic care can be provided, excluding corridor spaces (McCarthy et al., 2008). The higher the OR, the more crowded the ED. The EDLOS includes the time from arrival at the ED to discharge home or admission to a hospital ward (Hruska et al., 2019). Increased OR and prolonged EDLOS affect healthcare staff's ability to provide timely care, which can have a significant impact on patient safety and QoC (Berg et al., 2019; Morley et al., 2018; Wretborn et al., 2020). For instance, analgesics, antibiotics and time to triage have been shown to be prolonged during crowding (Darraj et al., 2023; Mills et al., 2009; van der Linden et al., 2016). Patient EDLOS in Swedish EDs has increased by approximately 1 hour over the last 10 years, from 207 minutes (3.45 hours) in 2016 to 253 minutes (4.21 hours) in 2024. Patients over 80 years of age experience longer EDLOS than younger patients (The National Board of Health and Welfare, 2025). Furthermore, women, patients older than 60 years and those born outside the European Union or the Nordic countries wait longer to see a physician than other groups in the ED (Malmer et al., 2025). The EDLOS observed in Swedish EDs is comparable to those in other countries (de Groot et al., 2024).

The EDLOS influence patients' experience with ED care (Tekwani et al., 2013; Welch, 2010); moreover, the risk of adverse events increases with prolonged EDLOS. According to the Health and Social Care Inspectorate (2018), patients have sustained severe injuries as a result of extended EDLOS. Frail patients, which experience longer EDLOS and higher mortality rates compared with more robust populations, are particularly vulnerable in EDs (Munir Ehrlington et al., 2024).

Boarding is a further contextual factor with implications for QoC. As mentioned previously, 'boarding' is defined as remaining in the ED after being admitted or placed into observation status but before transferral to an inpatient or observation unit (American College of

Emergency Physicians, 2018). Research from the Swedish context shows that boarded patients' fundamental needs are often unmet (Rantala et al., 2021). Frail older patients are particularly vulnerable to boarding and have described it as a 'no man's land' characterised by unclear information and unclear care-giver responsibility (Bjurbo et al., 2026).

Patients in emergency departments

The demand for emergency care provided in EDs is increasing globally (Curtis et al., 2020; McIntyre & Chow, 2020). Approximately 1.8 million patients aged 18 years or over sought care at the 61 Swedish somatic EDs during 2024 (The National Board of Health and Welfare, 2025). The most common mode of admission to the ED is self-referral (walk-in), which accounts for approximately 77% of patients, compared with patients arriving via emergency medical services (af Ugglas et al., 2021).

The most prevalent reasons for seeking care at a Swedish ED among patients aged 18 years or older were abdominal pain, chest pain, dyspnoea, lower extremity injury and non-specific complaints; together, these accounted for approximately 41% between 2015 and 2019 (af Ugglas et al., 2021). Patients 65 years or older account for 47% of the ED census 2025 (The National Board of Health and Welfare, 2025). It has also been reported that older adults have more complex medical needs, experience a longer EDLOS and require more resources in the ED (Erwander et al., 2024; Gentili et al., 2021).

Upon arrival at the ED, patients are assigned a triage category. The distribution of patients across triage categories, lowest priority level (blue) to highest priority level (red), during 2021 in one Swedish ED was as follows: blue, n = 71 patients; green, n = 546; orange, n = 192; and red, n = 42 (Habbouche et al., 2022). Another Swedish study showed that approximately 84% of the total ED census, according to triage category, is assessed to have a non-life-threatening condition (af Ugglas et al., 2021). Compared to the Swedish context, slightly lower proportions of urgent and non-urgent triage classifications have been reported internationally: in Netherlands, the proportion of non-urgent triage classification between 2016 and 2021 was reported at 73.1%; in

Denmark, the proportion was 66.1%; and in Australia, it was 72.6% (de Groot et al., 2024). However, different triage systems limits the comparability.

Emergency nursing care

Nursing is a distinct, regulated profession grounded in scientific and humanistic knowledge, ethical practice and people-centred care (International Council of Nurses, 2021, 2026; McCormack et al., 2021). Previous research has not yet established a shared and clearly defined conceptualisation of emergency nursing (care) as a distinct clinical and organisational concept (Skov et al., 2026).
In this thesis, *emergency nursing care* is defined as the care of individuals across all age groups who often have undifferentiated health conditions on arrival or who require medical care and interventions for physical or emotional health needs within a designated ED or facility (National Emergency Nurses' Association, 2025).

Emergency nursing care is practiced at the intersection of various specialties and subspecialties within the broader healthcare landscape (Bell et al., 2019; National Emergency Nurses' Association, 2025). In this setting, RNs provide emergency nursing care to patients of all ages presenting with perceived or actual physical, emotional or psychological health alterations, whenever and wherever rapid assessment and stabilisation of illness or injury are required (Sweet & Foley, 2020). Direct nursing care is focused on promoting health, preventing illness, alleviating suffering and supporting patients in managing both acute and chronic conditions (White et al., 2025). In the Swedish setting, nursing care is the RN's specific area of competence, encompassing both independent clinical decision-making and personal accountability for the delivery of safe and high-quality care (Svensk sjuksköterskeförening, 2024). Furthermore, in EDs, RNs also collaborate with assistant nurses (ANs), for example by providing supervision (Blay & Roche, 2020) when ANs support patients with activities of daily living (The National Board of Health and Welfare, 2021). The Swedish competence description for RNs with a postgraduate diploma in specialist nursing in emergency care states that they must maintain both a readiness to act and the ability to

prioritise in advanced and complex acute care situations (Riksföreningen för Akutsjuksköterskor & Svensk Sjuksköterskeförening, 2017). Although formulated for specialist nurses, the description also offers further insight into what working in the ED entails for RNs.

Emergency nursing care draws on both general and specialised assessments, interventions and management skills, encompassing the assessment, diagnosis, treatment and evaluation of conditions ranging from minimal care to advanced life support, along with the management of complex technology (Fry, 2008; Sweet & Foley, 2020). Here, *technology* can be understood as equipment, items and machinery – both established and emerging – connected to knowledge and management to maximise efficiency (Barnard, 2000), as well as the knowledge required to use and translate it into nursing care (Tunlind et al., 2015) including administrative tasks such as documentation and track results from information technology (Skov et al., 2026). Emergency nursing care also encompasses everyday clinical leadership such as team collaboration and fundamental care (Skov et al., 2026). In this thesis, technical care, and everyday clinical leadership, including team collaboration are positioned within the medical/technical domain of emergency nursing care, while fundamental care is conceptualised as a distinct but interrelated domain.

Emergency nursing care requires a blend of medical, technical (complex technology) and fundamental care competencies. In this thesis, process quality is explored in relation to medical/technical and fundamental care and the activities performed by RNs and ANs in addressing these needs. The definitions of fundamental and medical/technical care are drawn from academic literature (Andersson et al., 2012; Benjamin, 2024; Benjamin & Wolf, 2022; Berg et al., 2012; Duhalde et al., 2023; Feo et al., 2018; Göransson et al., 2024; Munroe et al., 2013; Munroe et al., 2015; Sweet & Foley, 2020).

Fundamental care

Fundamental care needs are the universal needs shared by all individuals, regardless of the presence or type of clinical condition or health status (Feo et al., 2018; Kitson, 2018: Kitson et al., 2010). The International Learning Collaborative (ILC) developed the Fundamentals of Care framework to enhance healthcare staff's capabilities to deliver fundamental care to patients, as a response to difficulties in implementing person-centred care (Kitson et al., 2013; Feo & Kitson, 2016) and to the global prevalence of MNC, a patient safety threat (Feo & Kitson, 2016; Gong et al., 2025). The Fundamentals of Care framework aligns with person-centred care principles, placing the relationship-based care process at its core, and serves as a conceptual guide for delivering holistic, person-centred fundamental care, offering practical recommendations for practice (Feo et al., 2018; Kitson, 2018). Therefore, with its focus on patient-centred care, effectiveness and safety, the Fundamentals of Care framework is well suited for use in this thesis, with its roots in nursing care and MNC.

The first conceptualisation of the Fundamentals of Care framework was drafted by the ILC in 2013 (Kitson, 2013). In 2018, a significant advancement was made by introducing a standardised definition of fundamental care and its constituent elements (Feo et al., 2018). The Fundamentals of Care framework provides a valid, comprehensive, evidence-based description of fundamental care (Mudd et al., 2020). The Fundamentals of Care framework has been translated into Swedish and culturally adapted to the Swedish context (Muntlin & Jangland, 2023).

In line with the Fundamentals of Care framework, a positive and trusting nurse–patient relationship must first be established, which constitutes the inner dimension of the framework (Figure 1). Building on this relationship, the RN can address and integrate the patient's physical, psychosocial and relational needs, which constitutes the second dimension, integration of care (Feo et al., 2018). The third dimension, the context of care, comprises the policy- and system-level factors that facilitate or inhibit the delivery of fundamental care, and thereby shapes the conditions for both the relationship and the

integration of care. Taken together, the framework describes how a patient's physical, psychosocial and relational needs are integrated and met within a single care encounter (Feo et al., 2018).

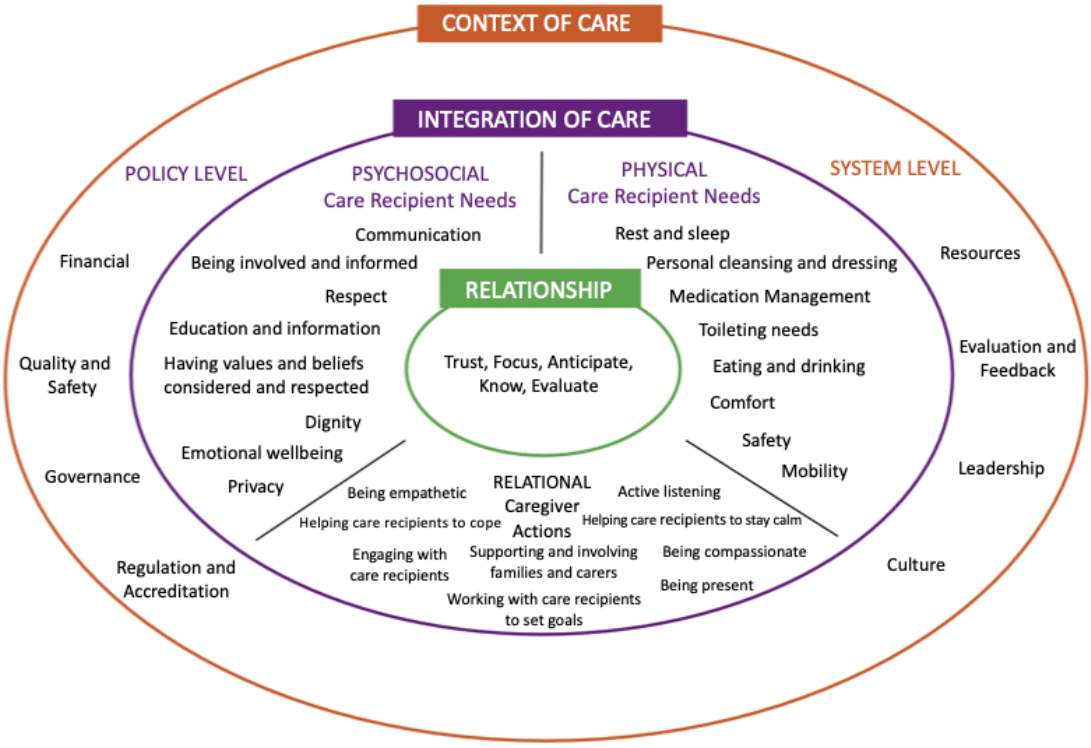

Figure 1. The Fundamentals of Care framework (Kitson et al., 2013; Feo et al. 2018).

Medical / technical care

Medical/technical care, such as triage and patient assessments, is viewed herein as a further operationalisation of emergency nursing care.

Triage and post-triage assessments

Triage is a complex, complaint-based process of sorting patients with the aim of having each patient be treated by the right provider at the right time and for the right reason. The complaint-based – rather than diagnosis-based – nature of this assessment distinguishes emergency nursing care from other clinical specialties and underpins its recognition as a specialty in its own right (Sweet & Foley, 2020). Triage core competencies include clinical judgement (e.g. determining triage acuity), communication (e.g. demonstrating effective communication

with patients), expert assessment (e.g. identifying high-risk vital signs), timely decisions (e.g. rapidly analysing subjective and objective assessments to plan the next action or intervention) and management of medical resources (e.g. identifying how to prioritise multiple patient presentations) (Wolf et al., 2017; Wolf et al., 2025).

Another aspect of medical/technical care is illustrated by the nursing assessment that follows the ED triage. The History, Red flags, Assessment, Interventions, Diagnostics (HIRAID) framework encompasses the patient's history, red flags identified, assessment, interventions and diagnostics. Using the HIRAID framework improves the identification of signs of critical illness or potential deterioration. This framework is a validated emergency nurse framework applicable to any patient presentation for systematically assessing and managing ED patients (Munroe et al., 2013). It supports RNs in conducting focused assessments and vital sign monitoring, initiating appropriate interventions and diagnostics, and ensuring continuous reassessment and effective communication throughout the ED care of patients (Munroe et al., 2015).

The delivery of emergency nursing care

Emergency nursing care encompasses both direct nursing care and patient flow in the ED, which together constitute what has been described as 'patient flow management' (Göransson et al., 2024). *Patient flow management* consists of logistic and process-oriented activities that ensure effective patient flow forward in the ED (Benjamin & Wolf, 2022). The overall goal of patient flow is the collective safety of patients; instead of viewing timeliness and efficiency as independent goals, they are viewed as affecting patient safety (Benjamin, 2024; Benjamin & Wolf, 2022).

Within medical/technical and fundamental care, key activities undertaken by RNs include information exchange, information seeking, patient–/family–nurse interaction, administration and documentation (Berg et al., 2012), and triage and assessments of the patient's medical needs (Andersson et al., 2012). These activities must be conducted under a variety of conditions. During certain time

periods, RNs may be responsible for up to nine patients or more (Amritzer et al., 2021; Wretborn et al., 2020).

RNs tend to perceive their role in the ED as being primarily focused on the saving of lives and the treatment of patients who are acutely ill (Elmqvist et al., 2012; Pavedahl et al., 2022; Tegelberg et al., 2020). However, more experienced healthcare staff members tend to view the full scope of emergency nursing care as equally important (Amritzer et al., 2026). Furthermore, the ability to identify and manage a patient's signs and symptoms is a valued competence among RN (Andersson et al., 2014). Importantly, research shows that, in resuscitation rooms, an RN's focus on the patient decreases over time, which limits the RN's ability to meet the patient's fundamental and medical needs (Pavedahl et al., 2021).

This thesis explores errors of omission, a specific type of root cause underlying quality deficiencies. This choice was made in light of the notable lack of research within the ED context, whereas research from other contexts has demonstrated quality deficiencies associated with MNC (Chaboyer et al., 2021).

Errors of omission in nursing care

Throughout the last two decades, several conceptual frameworks that reflect omission of nursing care have been developed (Jones et al., 2015). Each conceptual framework is also explicitly linked to the nursing process, further conceptually aligning the omission of nursing care with the nursing discipline (Jones et al., 2015). Three conceptual frameworks – the Tasks Undone measure (Aiken et al., 2001; Sochalski, 2004), the Implicit Rationing of Nursing Care model (Schubert et al., 2008) and the Missed Nursing Care (MNC) model (Kalisch, 2006; Kalisch et al., 2009) – account for 80% of the research base related to nursing care and errors of omission (Palese et al., 2021; Willis et al., 2021). While each framework has its own subtle distinctions, the underlying concept is fundamentally the same phenomenon: care that is partly or fully omitted or significantly delayed (Dello et al., 2025).

Missed nursing care

In this thesis, errors of omission are operationalised by adopting Kalisch's definition of MNC as any aspect of required patient care that is omitted, in part or in whole, or delayed (Kalisch, 2006; Kalisch et al., 2009). The concept was originally developed from medical and surgical wards in the United States in regard to care missed on a regular basis, but excluding care missed during emergencies (Kalisch, 2006; Kalisch et al., 2009). A substantial research base shows that physical, emotional, psychological and spiritual support; surveillance and assessments; medical treatments; and nurse-initiated independent interventions are frequently missed (Chaboyer et al., 2021; Vincelette et al., 2019). Staff levels, workload, case mix, gender, professional experience and education are antecedents associated with MNC (Chiappinotto et al., 2022). Re-admissions, falls, pressure injuries, urinary tract infections, length of hospital stay and increased mortality have been shown to be associated with MNC (Ball et al., 2018; Griffiths et al., 2018; Griffiths et al., 2018; He et al., 2025; Musy et al., 2021).

Given that the phenomenon of MNC is closely related to the context in which it is explored, research inquiries are typically adapted to that specific context, such as survey items for healthcare staff or patients in the operating room or the post-operative care unit (Heng et al., 2024; Kiekkas et al., 2021; von Vogelsang et al., 2025).

In EDs, the attributes, antecedents and consequences of the omission of nursing care are distinct (Provost et al., 2025). Unpredictable patient flow, critical and often unstable patient conditions, and the requirement for rapid decision-making distinctly characterise errors of omission in EDs, differentiating them from those observed in medical and surgical contexts (Provost et al., 2025). It is therefore essential that research conducted in the ED be specifically tailored to this context, including the instruments and methods used to measure MNC. This task has not yet been systematically performed.

Missed nursing care in the ED

Researching MNC can provide insights about MNC prevalence, patterns and associations with nurse-related organisational factors (Ausserhofer et al., 2014). In this way, significant QoC deficiencies can be identified and improved. Thus far, no instruments derived from the Tasks Undone, Implicit Rationing or MNC traditions have been adapted to the ED context, and few qualitative studies explicitly exploring MNC in EDs have been published.

The MISSCARE survey, adapted for medical and surgical wards, was used in two studies. In one study in a Swedish setting, exceedingly high levels were reported from two Swedish EDs for most nursing items (Amritzer et al., 2024). A further study in the ED context explored whether the presence of agency nurses, as a means of avoiding low RN-to-patient ratios, could prevent high MNC, which was found not to be the case (Senek et al., 2020). A third study, an observational study, covered missed triage, medication management and communication (Rooddehghan et al., 2024). Qualitative research exploring how perceptions relate to the care that is performed and missed to better understand why nursing care is missed and how RNs prioritise what care to miss, remains a research gap across contexts (Chaboyer et al., 2021).

In the ED context, research specifically addressing MNC is scarce. One study showed that experienced healthcare staff consider almost all nursing tasks to be essential; however, when prioritisation was necessary, less urgent tasks could be missed (Amritzer et al., 2026). RNs have reported that nurse-to-patient ratios below 1:3 lead to MNC (Wolf et al., 2026). Drennan et al. (2024) demonstrated that high patient-to-nurse ratios were associated with adverse patient outcomes, including patients leaving without being seen, delayed time to treatment and unexpected cardiac arrest.

Nevertheless, there is little research addressing structure, process and outcome quality in the ED from the perspective of emergency nursing care. Moreover, contemporary conceptual frameworks such as the Fundamentals of Care framework have received limited attention in emergency care research. Existing studies have primarily focused on

the resuscitation room (Pavedahl et al., 2021; Pavedahl et al., 2022; Pavedahl et al., 2024), whereas the emergency department as a whole remains largely unexplored from this perspective. Nor have in-depth descriptions of medical/technical care as an operationalisation of emergency nursing care and MNC been made. Finally, the link between the outcomes of emergency nursing care and MNC in relation to patients' perceptions of QoC has not been examined.

RATIONALE

As life expectancy increases, more people live longer with chronic diseases that must be managed within already-strained healthcare systems. In the Swedish acute care context, access to staffed hospital beds is limited, and a shift has been initiated towards increased responsibility for acute care in the primary care sector, although capacity for acute care in that sector has not been dimensioned accordingly. Within this healthcare landscape, EDs occupy a central position, providing emergency care while linking primary care to the specialised care delivered in hospitals. This position implies that EDs are particularly exposed to capacity and demand imbalances or crowding. RNs play a central role in maintaining QoC in the ED – a role that becomes particularly important when crowding intensifies. There is a lack of knowledge regarding RNs' perceptions of and capacity to enact emergency nursing care in the ED, resulting in MNC and, by extension, reduced QoC as experienced by patients. This thesis therefore explores structural, process and outcome quality in the ED from the perspectives of both healthcare staff and patients. Increased knowledge could contribute to improved QoC and help clarify the links between the context of care, emergency nursing care and QoC in the ED.

OVERALL AND SPECIFIC AIMS

The overall aim of the thesis is to examine and explore quality of care in emergency departments from the perspectives of healthcare staff and patients. The specific aims of the studies are as follows:

I: To summarize and disseminate research about missed nursing care in emergency departments.

II: To explore emergency nurses' perceptions of nursing care in emergency departments.

III: To explore patients' fundamental care needs, to which extent they are met and to assess how the care activities of registered nurses and assistant nurses are accomplished. A further aim is to investigate their associations with contextual factors in an emergency department setting.

IV: To measure patients' perceptions of quality of care in the emergency department setting by adapting the Quality from the Patients Perspective instrument to the Fundamentals of Care framework.

METHODS

Theoretical stances

The scientific field of nursing requires a variety of types of knowledge, and adhering to a single paradigm that predetermines the direction of research and theory development could limit the breadth of knowledge available for utilisation in practice (Weaver & Olson, 2006). Multiple modes of research inquiry have also been proposed to meet nursing knowledge demands (Fawcett et al., 2001). Emergency nursing care, whether missed or performed, and its relationship with QoC are phenomena with implications for multiple stakeholders, including patients and healthcare staff, whose respective perceptions of nursing care and QoC represent a subjective dimension of this phenomenon, distinct from its objectively measurable occurrence. Pragmatism is characterised by methodological pluralism, the goal of which is to conduct research more effectively. In practice, this involves combining and matching design components that offer the best chance of answering specific research questions and ensuring practical usefulness, which enables complex research areas to be addressed in the scope of nursing research (Johnson & Onwuegbuzie, 2004; Nowell, 2015). Accordingly, a pragmatic view has permeated the design of this thesis, allowing the research problem to be approached from different ontological views, constructed multiple views (Paper II) and an objective single view of reality (Paper III), while Paper IV quantifies a phenomenon rooted in subjective experience. Addressing both the subjective and the objectively measurable dimension of this phenomenon thus requires different modes of inquiry. The epistemological decisions underpinning which knowledge was best suited to address the research questions in this thesis were based on both subjective qualitative (Paper II) and objective quantitative (Papers III and IV) knowledge, including the quantification of subjective experience (Paper IV).

Design

The thesis comprises four papers (I–IV), each contributing to the overall aim. To ensure a systematic approach, each study was designed in relation to the specific aims, with a scoping review (Paper I) a qualitative study (Paper II) and two quantitative studies (Papers III, IV), as outlined in Table 2.

Based on the broad aim in Paper I, which was to summarise and disseminate research about missed nursing care in emergency departments, a scoping review according to Arksey and O'Malley (2005) was considered suitable, as no reviews of MNC have been published in the ED setting before. Furthermore, scoping reviews are particularly suitable to identify research gaps (Arksey & O'Malley, 2005). Regarding the aim, studies with qualitative, quantitative and mixed-methods designs were likely to be relevant, further reinforcing the suitability of the scoping review design.

In Paper II, a qualitative descriptive design with a phenomenographic approach was used (Marton, 1981). In phenomenographic research, a common point of departure is that people value phenomena differently, which is reflected in their perceptions of the phenomenon. Applying a phenomenographic approach thus enables an exploration of how people qualitatively differ in their experiences and perceptions of a phenomenon (Marton, 1981).

In Paper III, a quantitative observational design was used (Carthey, 2003; Fix et al., 2022; Fry et al., 2017). A quantitative observational design in which data are collected through structured observations of types and frequency is suitable when frequently occurring actions, activities or events (e.g. clinical process) are explored.

In Paper IV, a cross-sectional design was used. A cross-sectional design is suitable to describe a group of subjects at a specific point of time (Walters et al., 2021). In Paper IV, patients' perceptions of QoC in the ED was measured with the QPP instrument adapted to the Fundamentals of Care framework. The study involved a comparison of associations between predictor and outcome variables (Flanagan et al., 2025), so a cross-sectional design was deemed appropriate.

Table 2. Overview of papers in the thesis.

	Design	Sample and setting	Data collection	Data analysis
I	Scoping review	-	Literature retrieval Jan 2022–Feb 2023	Framework analysis
II	Qualitative-descriptive study	RN n = 15 ED A	Individual interviews Jan 2023–Aug 2023	Phenomenography
III	Quantitative-observational study	Patients n= 75 Registered nurses n= 30 Assistant nurses n= 20 ED A	Direct observations. Field notes Follow-up dialogue Electronic health records Patients: Oct 2024–Feb 2025 RNs & ANs: Apr 2025–May 2025	Descriptive and inferential statistics
IV	Quantitative-cross-sectional study	Patients n = 308 ED A ED B	Questionnaire Nov 2025–Feb 2026	Descriptive, inferential and psychometric statistics

Paper I

Data collection

The scoping review followed the steps describe by Arksey and O'Malley (2005), as outlined in Table 3. Drawing from Levac et al. (2010), clarification and elaboration were applied, particularly when charting the data (Step 4) and collating, summarising and reporting the results (Step 5) in this review. This integration ensured a comprehensive approach throughout the process.

Table 3. The sequence of steps in the scoping review.

Step 1	Identify research question
Step 2	Identify relevant studies
Step 3	Study selection
Step 4	Chart the data
Step 5	Collate, summarise and report the results
Step 6	Consult

A comprehensive process of searching in the databases Web of Science, Cinahl and Medline was conducted. Through a systematic process, index terms and keywords were identified and structured in three blocks according to the acronym PCC (*population*, *concept* and *context*) (Peters et al., 2020), ensuring a robust research method. Block 1 (population) covered patients or RNs in EDs, Block 2 (concept) covered MNC and Block 3 (context) covered hospital-bound EDs. The whole research group evaluated the search results regarding breadth and depth and improved them by consensus in recurring meetings. Throughout Step 2, a dialogue was conducted with two subject librarians.

In total, 3557 studies were screened by at least two authors in the research group. Studies were included if the populations were either or both RNs or patients 18 years or older. Relevant studies involved the concept of MNC and the context of hospital-bound EDs. A total of 55 studies were included in the review.

Data analysis

The aim of Paper I was to summarize and disseminate research about missed nursing care in emergency departments.
Two research questions guided the review:

1. What are the type, prevalence and causes of MNC in EDs?
2. What is known about MNC in relation to patient safety and QoC in EDs?

A total of 55 studies were charted regarding their author, year of publication and country, aim, design, data-collection instruments, analysis, sample, setting, ethical approval, population, key findings, causes and character of MNC, and patient safety and QoC. Qualitative data were analysed with the framework method (Gale et al., 2013) and presented as themes. Quantitative data were numerically analysed. Five RNs with clinical experience from different EDs were consulted (Step 6) about recognising and validating the result. The RNs confirmed the results and suggested minor clarifications.

Papers II, III and IV

Setting

The setting for Papers II and III was a single urban community hospital ED (denoted as 'ED A') in the central part of Sweden. The skill mix in the ED included RNs (n = 50), ANs (n = 45), physicians and other allied healthcare staff. In ED A, care teams comprised one RN and one AN on each shift. Each shift comprised five to seven care teams distributed across three different sections (medical, surgical and orthopaedic) and an emergency response team dedicated to the emergency rooms. Additionally, one RN supervised the flow of patients in the medical section, and one RN managed the overall ED flow and workforce. A triage team including a physician might also assist in triaging medical patients. Approximately 50,000 patients visited the ED in 2025. Patients seeking care for medical, surgical or orthopaedic injuries and diseases were treated in the ED. In addition, patients with obstetric, gynaecological or ear/nose/throat conditions could be treated in the ED. Approximately 28% of ED patients were admitted to a hospital ward.

In addition to the previously mentioned urban community hospital (ED A), Paper IV involved a university hospital (ED B) with approximately 75,000 patients are treated annually. The ED at this hospital was staffed by 100 RNs, of whom 41 held a specialist degree, and approximately 75 ANs. About 9–12 RNs and 7–10 ANs staffed the ED. Emergency physicians primarily staffed the ED, while physicians from other departments occasionally did so. Patients were received by one admission team consisting of one RN and one administrative staff member; approximately 25% were redirected to other levels of care. In the ED, patients were assessed by one triage team and managed by four care teams and one observation team. The care teams were most often staffed by one RN and one AN. Senior RNs on the resuscitation team supported the care teams when not occupied with their own patients. Approximately 25% of ED patients were admitted to a hospital ward.

Participants

Paper II

Paper II used a purposive sampling approach to reach RNs based on variation in age, gender, level of education and work experience as RNs (Table 4). In total, 15 RNs were included: 11 were female and four were male, with an age range of 25–63 years. The participants had worked as an RN for 1–36 years and had work experience in the ED setting for 1–20 years. Four of the included RNs were in postgraduate education, and one RN had a postgraduate diploma in specialist nursing emergency care.

Paper III

The participants in Paper III consisted of patients, RNs and ANs.

Patients

Patients were identified in a two-step process. First, patients were strategically selected from clinical sections on a daily basis, in relation to the relative distribution of actual patient flow across three clinical sections. Second, a convenient sample of patients newly admitted to the ED was included from each clinical section (Table 4).

Table 4. Patient and healthcare staff inclusion and exclusion criteria in Papers II, III & IV.

	Inclusion criteria	Exclusion criteria
Paper II	**RNs** Being employed as an RN at the ED	**RNs** RNs mainly working as managers or agency nurses
Paper III	**Patients** ≥ 65 years Arrival to the ED as a walk-in patient not having undergone triage Arrival to the ED via emergency medical services, not having undergone assessment by RNs or ANs Eligible to provide written informed consent	**Patients** Patients managed in the resuscitation room Patients presenting with altered mental status
	RNs and ANs RNs or ANs who consented to participate and provided written informed consent	**RNs and ANs** RNs and ANs assigned to administrative tasks or to the resuscitation room during their shifts
Paper IV	**Patients** ED patients ≥ 18 years old Able to speak and/or read Swedish Examined by a physician Able to consent	**Patients** Length of stay less than 30 minutes

The sample size was determined based on an observation period of 180 hours being considered feasible. To estimate how many patients could reasonably be observed within 180 hours, the mean, median and 95% confidence intervals were calculated for different possible lengths of direct observation sessions, ranging from 1 to 4 hours. Using this range, the expected number of patients observable within 180 hours was plotted. The median estimate, 75 patients, was selected as the sample size.

In total, 75 patients were included: 56% were male and 44% were female. The males' mean age was 75.7 years, and the females' mean age was 77.3 years (Table 5). The observation time across 75 patients in Paper III (mean 2.14 hours, SD = 0.55) overlapped with the EDLOS across 308 patients in Paper IV is visualised in Figure 2.

Table 5. Emergency department patient characteristics, n = 75.

	***n* (%)**
Five most common medical complaints	
Chest pain	10 (13.3)
Abdominal pain	10 (13.3)
Dyspnoea	8 (10.7)
Hip/thigh or knee/lower leg injury/pain	7 (9.3)
Joint pain	6 (8.0)
Allocation to emergency department section based on chief complaint	
Medical section	36 (48.0)
Surgical section	23 (30.7)
Orthopaedic section	16 (21.3)
Patient triage acuity level	
Level 1, immediate	2 (2.7)
Level 2, very urgent	21 (28.0)
Level 3, urgent	42 (56.0)
Level 4, non-urgent	10 (13.3)
Occupancy rate over 1 at patient arrival	
Yes	14 (19.0)
No	61 (81.0)

Registered Nurses and assistant nurses

On a daily basis, one clinical section was strategically selected to ensure representation of both RNs and ANs. As previously described, the selection of clinical section was made in relation to the relative distribution of patient flow across the three included clinical sections (Table 4). The mean observation time was 1.35 hours (SD = 0.11).

Thirty (60%) RNs and 20 (40%) ANs were included. The females' (84%) mean age was 34.3 years; the males' (16%) mean age was 33.8

years. The ANs' mean work experience in EDs was 5.1 years, and the RNs' mean work experience in EDs was 3.1 years. The OR was ≥1 in 26% of the observations.

Paper IV

Patients who visited ED A or B during the data collection period could be recruited through convenience sampling. Patients were invited to participate by four RNs at ED A and two RNs at ED B (Table 4). An appropriate sample size was determined for conducting the planned analysis. A respondent-to-variable ratio of 5:1 to 10:1 has been recommended (Beavers et al., 2013). As such, the minimum sample size was estimated to be 200 patients (40 items). In total, 1101 patients were invited to participate, and 973 patients accepted. Of these, 308 (32%) patients returned a questionnaire, with 199 (65%) coming from ED A and 109 (35%) from ED B (Table 6). The patient reported EDLOS along the observation time across patients in Paper III is visualised in Figure 2.

Table 6. Patient characteristics, n = 308.

	***n* (%)**	**Mean (SD)**
Gender		
Male	140 (45.5)	
Female	168 (55.5)	
Other	0	
Age		
Male		63 (17.6)
Female		58 (20.4)
Next of kin accompanying patient		
Yes	115 (37.3)	
No	191 (62.0)	
Missing	2	
Medical section assigned based on chief complaint		
Medical section	156 (50.6)	
Surgical section	104 (33.8)	
Orthopaedic section	37 (12.0)	
Missing	11	

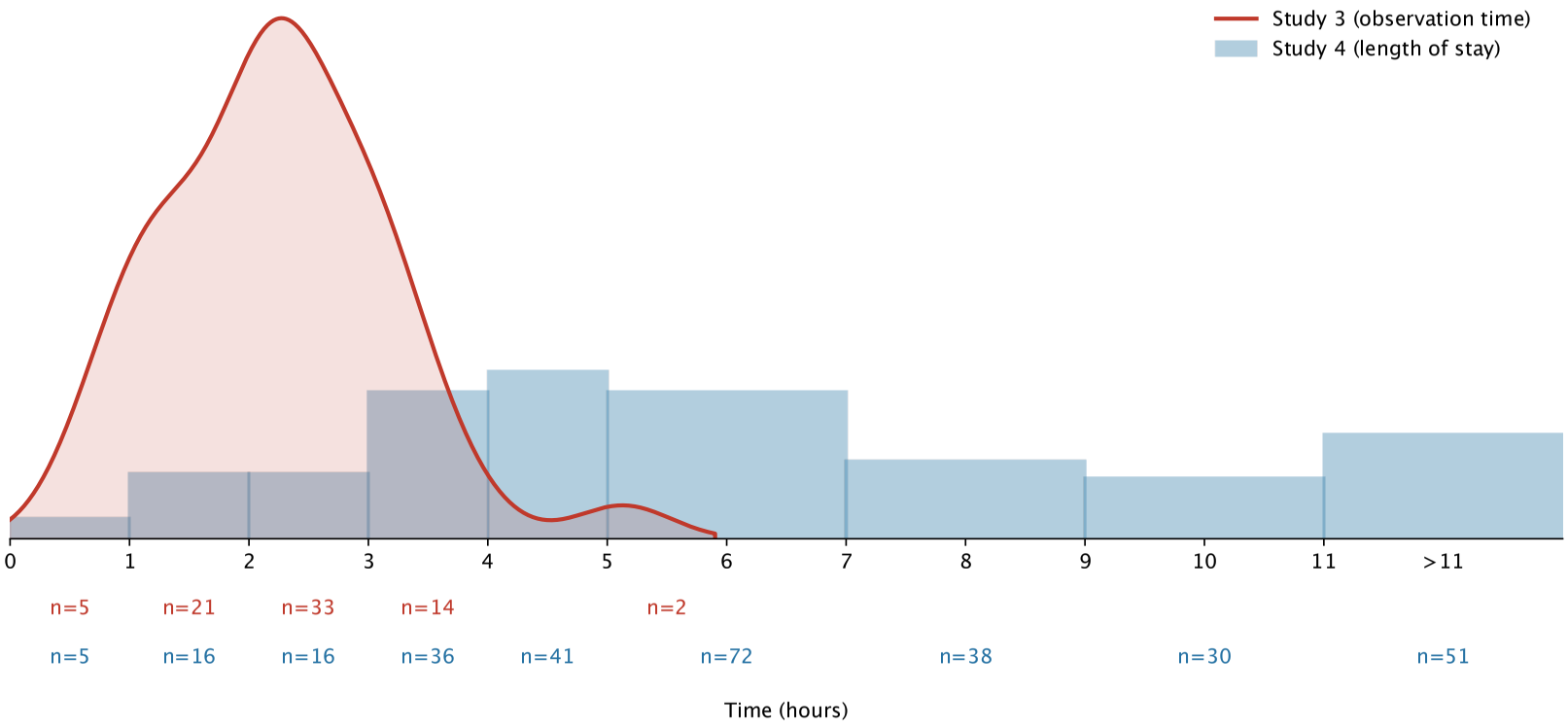

Figure 2. Patient distribution from Papers III and IV along a common time axis. In Paper III, observation time is presented with the total area under the curve equalling 1. The peak of the curve represents the time interval with the greatest proportion of observations. In Paper IV, patient-reported length of stay is presented as a histogram. The tallest bars indicate the time intervals where the greatest proportion of patients reported their length of stay

Data collection

Paper II

Fifteen face-to-face interviews were conducted and took place in various settings – the hospital, the university or via a secure digital platform – between January 2023 and September 2023. A semi-structured interview guide was used, including five open-ended questions:

- How do you identify nursing care needs?
- What nursing care needs do patients in the ED have?
- What nursing care do you provide in relation to patients' nursing care needs?
- What nursing care [tasks] are you expected to provide?
- Is there any nursing care that is not prioritised?

Follow-up questions included the following: Was any nursing care partly or fully missed, or was it delayed? Can you elaborate?

The interviews were digitally audio-recorded and lasted between 35 and 68 minutes (mean 57 minutes); they were transcribed verbatim.

Paper III

Patient, RN and AN data were collected on two separate occasions.

Patients

Patient observations were conducted by one observer (HD) and were carried out in one ED during 35 weekdays between October 2024 and February 2025. The observations proceeded for an average of 2.14 hours (SD = 0.55). Data were collected in three steps for each patient:

Step 1: Continuous observations;
Step 2: Spot checks;
Step 3: A follow-up dialogue (Figure 3).

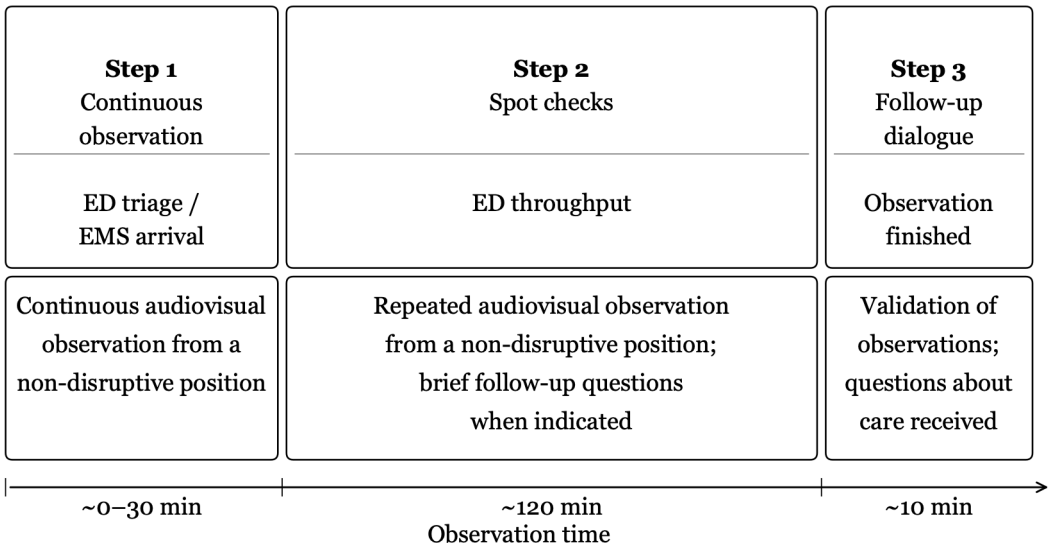

Figure 3. Schematic presentation of data-collection steps during patient data collection.

The patient observation protocol was developed to capture patient characteristics, contextual data and patients' fundamental care needs (Feo et al., 2018; Muntlin & Jangland, 2023). The extent of the identified fundamental care needs was classified according to whether the needs were met, missed fully, missed partly or delayed (Kalisch et al., 2009). The patient-observation protocol consisted of 37 items divided into two sections: 'integration of care' (17 items/elements across three subdimensions) and 'patient characteristics and contextual data' (20 items). Fieldnotes were collected but are not presented.

Registered Nurses and assistant nurses

Observations were conducted by one observer (HD) and were carried out in one ED over 21 weekdays between April 2025 and May 2025. Observations were conducted over 1.35 hours on average (SD = 0.11). Data collection was conducted in two steps:

Step 1: Continuous observations in the locations the RN or AN worked;

Step 2: A follow-up dialog conducted between the RN or AN and the observer about the care encounters in relation to the performed or MNC activities, along with two self-report measures completed by the observed RN or AN.

The RN and AN observation protocol and its development was designed to capture emergency nursing care activities. The activities were defined according to the Fundamentals of Care framework (Feo et al., 2018). Medical/technical care activities were defined according to research from the ED setting (Andersson et al., 2012; Berg et al., 2012; Duhalde et al., 2023). The research group's knowledge also informed the design of the observation protocol. The observation protocol included 63 items across two dimensions: 'integration of care' (15 items across three subdimensions) and 'medical/technical care' (48 items across 14 subdimensions). Fieldnotes were collected but are not presented.

Paper IV

In Paper IV, data were collected at two EDs between November 2025 and February 2026. At each site, two RNs were responsible for the data collection by ensuring that questionnaires were available and by onboarding RNs who could participate in including patients in the study. At ED A, HD also participated in data collection by including patients. Patients could choose to complete a paper or online questionnaire. Written information about the study was handed to all participating patients. Patients were instructed to complete the questionnaires close to or after discharge from the ED.

In Paper IV, an instrument denoted as Quality from the Patient Perspective – Fundamentals of Care –Emergency Department (QPP-FoC-ED) was developed. The QPP-FoC-ED instrument was based on the short form of the QPP instrument adapted for EDs (Larsson & Larsson, 2002; Wilde-Larsson et al., 2001) and the Fundamentals of Care framework (Feo et al., 2018). In addition, items were drafted from the QPP long form (Larsson & Wilde Larsson, 2017, pp. 90-91) and previous research in the ED context (Pavedahl et al., 2024).

Instrument development was conducted in five steps (DeVellis & Thorpe, 2022; Streiner et al., 2024) by a research team (HD, VP, KB, CB, AH) with expert knowledge in QPP, FoC and the ED context and by BWL, one of the authors of the original QPP instrument. The QPP-

FoC-ED instrument is divided into three parts. Parts One and Three consist of single and multiple-choice items and free text questions about the patient and the ED visit. Part Two consists of 40 items regarding the QoC in the ED. A 4-point Likert-type scale, ranging from 1 (*do not agree at all*) to 4 (*fully agree*), was used for the Perceived Reality (PR) scale; similarly, a 4-point scale from 1 (*of little or no importance*) to 4 (*of the very highest importance*) was used for the Subjective Importance (SI) scale. A non-applicable alternative was available for each item.

Data analysis

Paper II

A phenomenographic analysis aims to identify qualitative differences in how and in what different ways people perceive a phenomenon (Marton, 1997) and can be conducted in various ways (Barnard et al., 1999; Dahlgren & Fallsberg, 1991; Hyrkäs et al., 2003). The seven-step method by Sjöström and Dahlgren (2002) was used in this study (Table 7).

Table 7. The seven-step phenomenographic analysis method.

Step 1	Familiarisation with the material by reading the transcripts
Step 2	Compilation of the most significant elements of answers to a certain question
Step 3	Condensation of the answers
Step 4	Grouping of similar answers
Step 5	Comparison of categories by identifying and establishing borders between categories
Step 6	Naming the categories to emphasize their essence
Step 7	A contrastive comparison involving a description of each category and the resemblance between categories

Papers III and IV

Data were analysed using descriptive and inferential statistics according to variable distribution and scale (Field, 2018; Walters et al., 2021) (Table 8). Descriptive and inferential statistics were analysed using IBM SPSS Statistics (version 29; IBM Corp., Armonk, NY, USA). Confirmatory factor analysis was conducted using the lavaan package (Rosseel, 2012) in R version 4.4.1 (R Core Team, 2024) in RStudio (version 2026.4.0.526). Parameters were estimated using maximum likelihood (robust) with full information maximum likelihood (FIML) to handle missing data (Enders & Bandalos, 2001). Model fit was evaluated using the comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR) (Roos & Bauldry, 2022). Figures were created with Python 3.13.12 (Anaconda, Inc.) using the following libraries: Matplotlib 3.10.8, NumPy 2.4.4 and Pandas 3.0.2. Claude (Sonnet 4.6, Anthropic), was used to assist in the development of Python code for data visualisation. *P* values <0.05 and confidence intervals not crossing 1 were defined as statistically significant.

Table 8. Overview of statistical analysis and their application.

Statistics	Application of statistical analyses
Frequency, percentage, mean, median, standard deviation, interquartile range	To describe study samples (I–IV), frequency of care activities and fundamental care needs (Paper III), and cluster characteristics (Paper IV)
Pearson's chi-square test	To explore differences between patients in clusters based on clinical and demographic characteristics (Paper IV)
Mann–Whitney U test	To explore differences between patients' addressed and missed fundamental care needs (Paper III)
Paired t-test	To explore differences between PR and SI scales (paper IV)
Kruskal–Wallis test	To explore differences between patients' addressed and missed fundamental care needs (Paper III) and differences between patients in clusters based on clinical and demographic characteristics (Paper IV)
Negative binomial regression	To explore differences in activity rates based on type and workgroup (Paper III)
One-way analysis of variance (ANOVA), Welsch ANOVA	To explore the mean difference between three clusters (Paper IV)
Levene's test	To test homogeneity of variance in one way-ANOVA (Paper IV)
Games–Howell *post hoc* test	To explore the mean difference between three clusters (Paper IV)
Bonferroni *post hoc* correction	To explore the difference between patients (Paper III)
Spearman's correlation coefficients	To measure the strength and direction of the associations between RN- and AN-rated QoC and missed care activities with the OR (Paper III)
Confirmatory factor analysis including Comparative fit index (CFI) Tucker–Lewis index (TLI) Root mean square error of approximation (RMSEA) Standardised root mean square residual (SRMR)	To test the construct validity of the QPP-FoC-ED instrument and the Fundamentals of Care framework (Paper IV)
Hierarchical cluster analysis (HCA)	To identify clusters of patients based on present or non-present fundamental care needs (Paper IV)
McDonald's omega	To test the internal consistency (Paper IV) between >2 items
Spearman–Brown coefficient	To test the internal consistency (Paper IV) between 2 items

ETHICAL CONSIDERATIONS

The research conducted in this thesis adheres to the Declaration of Helsinki (World Medical Association, 2025), and participation in the studies was thus strictly voluntary. Before consenting, participants received information about the purpose of the studies, risks of participating and what participating would involve. Participants were given time to ask questions about what participating would imply for them. The method by which participants could contact a responsible researcher was clearly stated. Participation could also be withdrawn without any explanation given. Research data will be handled confidentially and stored for 10 years following Karlstad University's standard operating procedures (DNR. 230/02).

Considerations must be undertaken throughout when vulnerable populations are included in clinical studies. Conducting studies in the ED context inherently entails the presence of vulnerable patients, such as patients with impaired decision-making capabilities due to acute illness or injuries. In the course of this thesis, no vulnerable populations were included in order to safeguard their rights.

ETHICAL APPROVALS

Although no ethical review was required for Paper I, the study protocol was registered with the Karlstad University faculty ethics advisor. The Research Ethics Committee at Karlstad University and the Swedish Ethical Review Authority reviewed the project plans for Papers II, III and IV (Table 9).

Table 9. Ethical reviews performed across Papers I–IV.

Paper	Faculty ethics advisor	Research Ethics Committee at Karlstad University	Swedish Ethical Review Authority
I	HNT 2022/145		
II		Dnr. C2022/545	Dnr. 2022-04398-01
III		Dnr. C2023/963	Dnr. 2023-08127-01 Dnr. 2024-07421-02
IV		Dnr. C2025/308	Dnr. 2025-03095-01

RESULTS

The overall aim of this thesis was to examine and explore quality of care in emergency departments from the perspectives of healthcare staff and patients. The results are presented by providing key results for Papers I, II, III and IV, followed by a synthesis of the results from all four papers.

Paper I

The aim of Paper I was to summarise and disseminate research about missed nursing care in emergency departments. A quality appraisal was conducted using the Mixed-Methods Appraisal Tool (MMAT). The aggregated MMAT quality score of the included studies was rated as high (median = 0.8).

The results indicated that the causes of MNC can be broadly categorised into eight themes. The characteristics of MNC were categorised into 10 themes while the level of patient safety and QoC deficiencies associated with MNC encompass an additional two themes: specified and non-specified clinical deficiencies (Figure 4). The scoping review showed that a substantial evidence base on MNC in EDs was available yet unsummarised. The evidence showed that emergency nursing care may be omitted in EDs. Although both fundamental and medical/technical care can be omitted, the evidence indicated that the former is much more likely to be omitted than the latter. However, it remained unclear how RNs perceive emergency nursing care through the lens of fundamental and medical/technical care in the context of MNC in EDs.

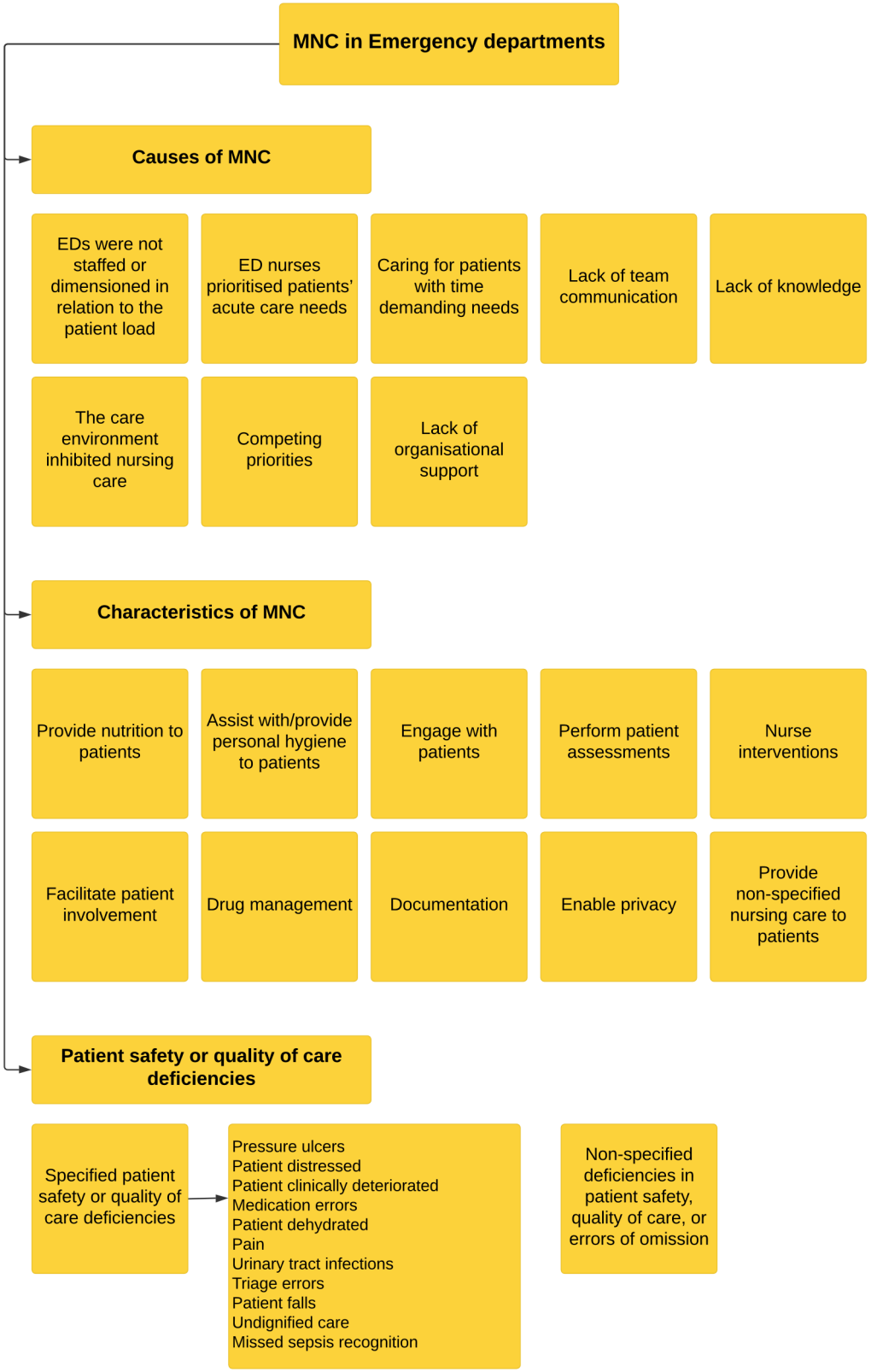

Figure 4. Thematic presentation of results from Paper I, categorised into three main themes.

Paper II

The aim of Paper II was to explore emergency nurses' perceptions of nursing care in emergency departments. The results showed that RNs had a scattered view of nursing care responsibilities. RNs' perceptions of their responsibilities differed between fundamental care needs and acute and medical care needs: the latter were perceived as meaningful responsibilities, while the responsibility for the former was largely viewed as belonging to other contexts, workgroups or the next of kin. RNs' perceptions about what constituted the highest priority in terms of nursing care included life-threatening conditions, unstable or acutely ill patients, and new untriaged patients, which had the highest priority in terms of nursing care.

RNs perceived that fundamental care needs were prioritised when there was time, patients were stable and the fundamental needs were easy to detect. RNs' perceptions of patients' detectable fundamental needs included physical needs such as pain, as opposed to psychosocial needs. RNs prioritised fundamental needs when patients were about to be discharged either home or to a hospital ward.

RNs' perceptions related to patient flow management involved managing an effective flow throughout the ED. RNs' perceptions of MNC varied substantially, ranging from emotional distress to perceiving MNC as unavoidable or outside their responsibility. Some RNs showed little discomfort, maintaining that adequate care had been provided despite MNC, while noting that expectations differed for patients awaiting ward admission compared with those actively receiving emergency care.

The results extend the findings of Paper I, indicating that certain aspects of emergency nursing care are more susceptible to being missed than others: notably, fundamental care are more susceptible to omission than medical/technical care. Furthermore, patients' fundamental care needs were perceived by RNs as more difficult to address in the ED, particularly those within the psychosocial subdimension. Paper I indicates how RNs' perceptions, as explored in Paper II, may translate into clinical practice; however, the quantitative

studies included in Paper I relied on self-reported, cross-sectional measures, which do not necessarily reflect actual practice. This discrepancy necessitated the different, observational, approach adopted in Paper III.

Paper III

The aim of Paper III was to explore patients' fundamental care needs, to which extent they are met and to assess how the care activities of registered nurses and assistant nurses are accomplished. A further aim is to investigate their associations with contextual factors in an emergency department setting.

The most prevalent fundamental care needs among the patients in the studied ED were within the physical subdimension (48%), followed by psychosocial care needs (38%) and relational care-giver needs/actions (14%). From five to 20 (median, 11) fundamental needs were observed per patient. The prevalence of MNC across all patients was 20%. Each patient had up to eight missed fundamental care needs, with a median of two. RNs and ANs conducted more medical/technical care activities than integration of care activities (RNs, 78% vs. 22%; ANs, 74% vs. 26%). Among the integration of care activities, psychosocial care activities were the most frequently performed activity by RNs (52%) and ANs (54%), followed by physical care (RNs, 39%; ANs, 38%), and relational care-giver actions (RNs, 8%; ANs, 8%). Physical needs were significantly more common among patients aged 76–85 years than among those aged 65–75 years (adjusted $p = 0.013$).

Crowding was measured with OR in this study. An OR ≥1 was significant associated with increased levels of MNC ($p = 0.039$). Furthermore, a decrease in OR was associated with a 27.8% (95% CI [0.564–0.925]) reduction in the rate of medical/technical care activities. However, the rate of integration of care activities was not significantly associated with OR.

Exploring the association between OR and RNs' assessed QoC showed that, as OR increased, QoC decreased ($r_s = -0.373$, $p = 0.042$). Moreover, the frequency of MNC as rated by RNs was positively

correlated with an increased OR (r_s = 0.402, p = 0.028). As rated by ANs, no significant correlation with OR and MNC was observed.

The results of Paper III are in line with the perceptions described in Paper II. RNs' and ANs' rates of performing medical/technical activities were considerably higher than those of performing fundamental care activities. Furthermore, both patient-level and RN-rated MNC were significantly associated with OR. However, it is not well known how patients' perception of QoC in EDs relates to their fundamental needs in EDs. A further observation is that subgroups within the ED population appear to differ regarding the extent of their fundamental care needs.

Paper IV

The aim of Paper IV was to measure patients' perceptions of quality of care in the emergency department setting by adapting the Quality from the Patients Perspective instrument to the Fundamentals of Care framework. Two research questions were formulated: what are ED patients' perceptions of QoC, and does the QPP-FoC-ED instrument demonstrate satisfactory reliability and validity?

Patient perceptions of quality of care

Patients' perceptions of QoC are presented here within the perspective of the Fundamentals of Care framework (Table 10). In the dimension *establish relationship*, patients perceived the highest QoC in relation to 'developing and maintaining trust' and the lowest QoC in relation to 'evaluate – quality, progress, outcomes'. Within the dimension *integration of care* and the subdimension *physical needs*, patients perceived the highest QoC in relation to 'safety' and the lowest QoC in relation to 'eating and drinking'. In the subdimension *relational care-giver actions*, the highest QoC was perceived in relation to 'active listening', while QoC in relation to 'helping patients to cope' was perceived as lower.

Within the *psychosocial needs* subdimension, the highest QoC was perceived in relation to 'patients being treated with respect', while lower QoC was perceived in relation to 'patients receiving adequate

information about waiting times for examinations and treatments'. In the dimension *privacy*, QoC was perceived more highly in relation to 'physicians shielding patients during examinations', while slightly lower QoC was perceived in relation to 'RNs and ANs preventing others from overhearing information about the patients' health'. Regarding the dimension *context of care*, high QoC was perceived in relation to 'RNs and ANs helping patients within an acceptable time when needing assistance', while lower QoC was perceived in relation to 'the ED felt like a safe environment'.

Table 10. The items with the highest and lowest mean values presented across the Fundamentals of Care framework, together with number of respondents, PR and SI mean values, and SD and *p* values.

FoC dimension/ subdimension – element	QPP-FoC-ED items	N	PR[a] mean (SD)	SI[b] mean (SD)	*P* value
Establish relationship					
Developing and maintaining trust	The physicians inspired confidence	290	3.57 (0.79)	3.64 (0.63)	0.129
Evaluate – quality, progress, outcomes	Actions taken were evaluated (e.g. pain relief)	169	3.12 (1.08)	3.54 (0.66)	<0.001
Integration of care					
Relational care-giver actions					
Active listening	I felt seen and listened to	287	3.46 (0.87)	3.69 (0.57)	<0.001
Helping patients to cope	I received assistance in managing the stress associated with my condition	145	2.85 (1.18)	3.30 (0.86)	<0.001
Physical needs					
Safety (risk assessment and management, infection prevention, minimising complications)	The care environment was clean	280	3.51 (0.79)	3.54 (0.63)	0.657
Eating and drinking	I received assistance with food and drinks	130	2.52 (1.24)	3.08 (0.97)	<0.001
Psychosocial needs					
Respect	I was treated with respect	288	3.65 (0.70)	3.71 (0.55)	0.130
Education and information	I received adequate information about waiting times for examinations and treatments	280	2.57 (1.12)	2.98 (0.86)	<0.001
Privacy	The physicians ensured that I was shielded from the view of others when I received assistance or was examined	253	3.38 (1.04)	3.05 (1.08)	<0.001
	The registered nurses and assistant nurses spoke with me in a manner that prevented other patients from overhearing information about my health	260	3.19 (1.04)	3.08 (1.02)	0.107
Context of care					
Resources	The registered nurses and assistant nurses helped me within an acceptable time when I needed assistance	258	3.35 (0.93)	3.40 (0.71)	0.361
Culture	The emergency department felt like a safe environment	288	2.26 (0.90)	3.46 (0.69)	0.054

[a] This is what I experienced (Perceived Reality, PR): 4, *fully agree*; 3, *mostly agree*; 2, *partly agree*; 1, *do not agree at all*.

[b] This is how important it was to me (Subjective Importance, SI): 4, *of the highest importance*; 3, *of high importance*; 2, *of some importance*; 1, *of little or of no importance*.

Reliability and validity of the instrument

Reliability

The instrument's internal consistency was evaluated using McDonald's omega and Spearman–Brown coefficients. The highest omega values for the PR and SI scales were found for the factors *relational care-giver actions* (ω = 0.901) and *physical care-recipient needs* (ω = 0.961), respectively. The lowest PR and SI omega values were observed for the factors *establish relationship* (ω = 0.839) and *psychosocial care-recipient needs* (ω = 0.773). Among the factors containing two items, Spearman–Brown coefficients were calculated. The highest Spearman–Brown coefficient was found for the factor *privacy*, for both the PR and SI scales (0.874 and 0.868, respectively), while the factor *resources* showed the lowest Spearman–Brown coefficient for both scales (0.748 and 0.730, respectively). The reliability estimates indicate satisfactory internal consistency, although some high omega values may suggest item redundancy.

Validity

The instrument's construct validity was evaluated in two ways: through structural validity and known-groups validity. Structural validity was evaluated through confirmatory factor analysis (CFA). The initial CFA indicated poor model fit in relation to the Fundamentals of Care framework structure. Guided by theoretical reasoning, model indices and modification indices, the model was refined until a satisfactory model fit and acceptable factor loadings was obtained.

Known-groups validity was evaluated through hypothesis testing informed by a cluster analysis. The cluster analysis was based on data on present or absent fundamental care needs. The proportion of present fundamental needs was lowest in cluster one (66%), compared with cluster two (81%) and cluster three (98%). In a subsequent analysis of sociodemographic and organisational data, a significantly longer EDLOS and more frequent arrival by EMS were observed in cluster three compared with clusters one and two. Given the prolonged EDLOS, the hypothesis was that QoC would be lower in cluster three compared with cluster one.

QoC was measured as the difference between the PR and SI mean values, with both the magnitude and direction of the difference being of interest; negative values indicated lower QoC. The analysis (Paper IV, Table 6) showed that, in five of seven factors, the difference between clusters one and three was significant, with cluster three having lower values than cluster one. These differences are visualised in Figure 5.

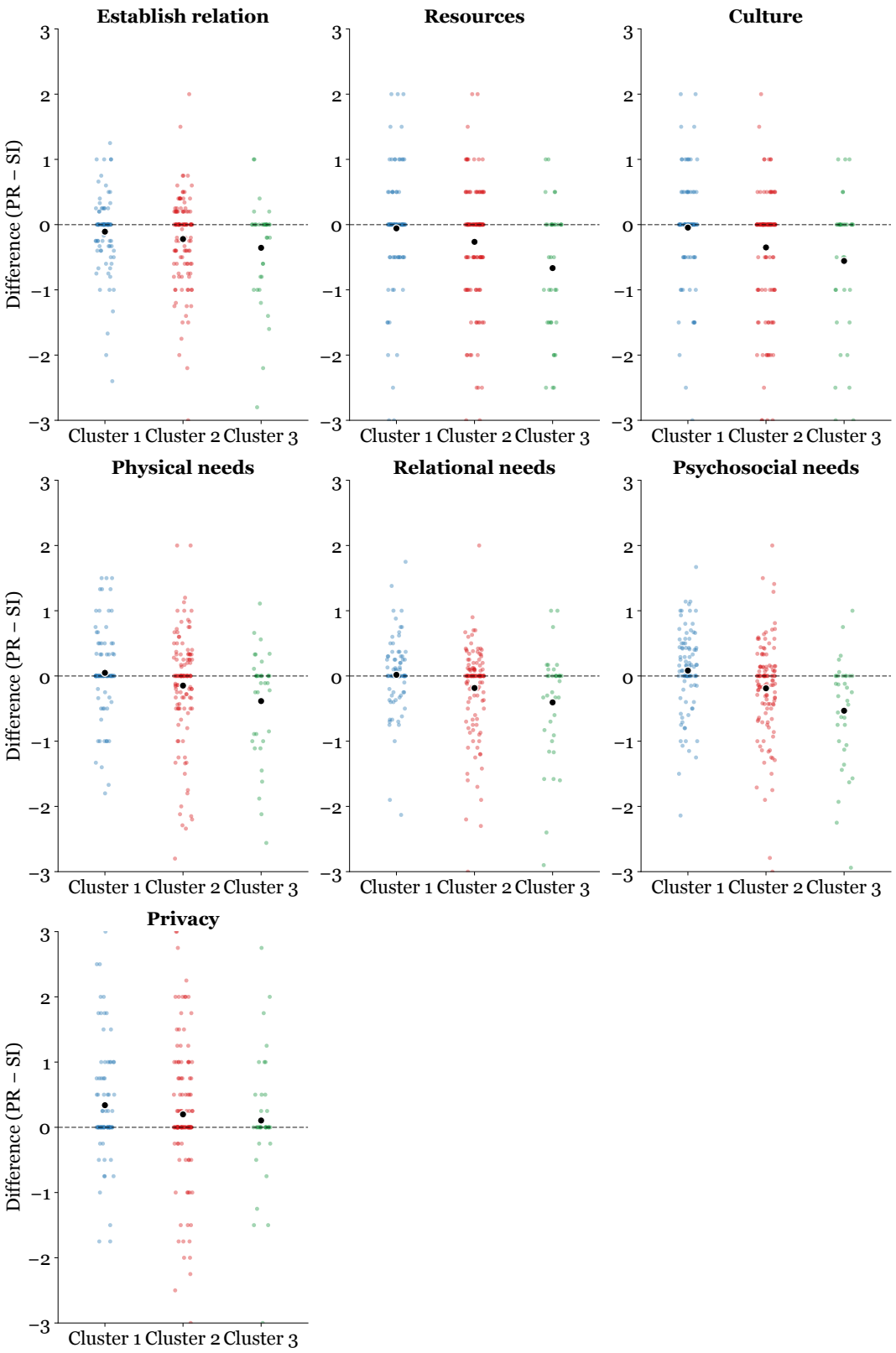

Figure 5. Mean difference (black circle) between perceived reality (PR) and subjective importance (SI) mean values presented for each factor and cluster, with individual patient values shown as jittered data points. Clusters are displayed on the *x*-axis and mean difference (PR – SI) on the *y*-axis.

Synthesis of results

Here, the main findings from Papers I–IV are derived and presented according to Donabedian's (1988, 2005) structure–process–outcome framework. Indicators of lower *structural quality* included a high OR; extended EDLOS; and patient boarding, as described across Papers I–IV. Further indicators were a lack of organisational support and facilities (Papers I and II) and insufficient knowledge (Paper I). Considered together with the limited clinical ladder progression and the small proportion of RNs with specialist nursing qualifications described in Paper III, this may suggest that competence-related aspects also contributed to lower structural quality.

According to the RNs, *process quality* could be upheld by maintaining the forward flow of patients from admission to discharge. RNs had a hierarchical view of emergency nursing care, where medical/technical and fundamental care were perceived as fragmented entities; the latter was considered secondary, delegable and conditionally provided based on patient characteristics such as age and absence of crowding (Paper II). In practice, RNs' hierarchal approach was shown in both RNs' and ANs' higher rates of medical/technical activities, which changed as the workload shifted. Fundamental care activities were carried out to a lower extent and remained unchanged under different workloads. RNs reported increased levels of MNC as workload increased (Paper III). MNC was more prevalent during crowding, among older patients and in shared care areas (Paper III).

Outcomes of MNC included triage errors, dehydration, falls, pressure ulcers, missed sepsis recognition, urinary tract infections and clinical deterioration (Paper I). From the patients' perspectives, QoC was significantly lower among patients with a higher proportion of fundamental needs and extended EDLOS (Paper IV). From the perspective of healthcare staff, MNC was described as leading to undignified and unsafe care (Papers I and II) and reduced QoC when emergency nursing care was delivered during crowding (Paper III).

DISCUSSION

Discussion of the results

The overall aim of this thesis was to examine and explore quality of care in emergency departments from the perspectives of healthcare staff and patients.

Structure

The findings of this thesis add nuance to the understanding of structural quality by demonstrating the complex and dynamic relationship between QoC and crowding. The organisational structure should support and direct the provision of care (Donabedian, 2005). Lower structural quality in the ED was demonstrated by patients being boarded while awaiting a hospital bed (Papers I & II). The causes for boarding extend beyond the ED itself (Asplin et al., 2003). Compared with other OECD countries, Sweden has one of the lowest numbers of hospital beds per capita (OECD, 2025). This shortage of staffed beds is a major source of quality deficiencies in the Swedish healthcare system, as manifested in the ED (Swedish Agency for Health and Care Services Analysis, 2018). As a result, Swedish RNs must continually balance their professional obligation to ensure safe and high-quality care against the constraints of limited resources and competing clinical priorities (Eriksson et al., 2018).

The Occupancy Rate (Paper III) and EDLOS (Paper IV) are two further measures associated with lower structural quality. Crowding in general is a well-recognised challenge to patient safety and QoC and is commonly measured through EDLOS or OR (Morley et al., 2018; Oskvarek et al., 2026). Strong associations with both EDLOS and OR have been shown in the domain of healthcare quality (Jones et al., 2021). For instance, in research focusing on medical outcomes, both EDLOS and OR have been shown to be associated with a reduction in IOM quality dimensions such as ‘safe’ and ‘timely’ (Bernstein et al., 2009). Systemic tensions across the healthcare sector, which manifest in EDs as crowding, have been recognised for over two decades (Asplin et al., 2003). This thesis positions such tensions within emergency nursing care by examining Fundamental and medical/technical care in relation to two crowding metrics, EDLOS and OR. According to the

Fundamentals of Care framework, the context of care shapes everyday nursing practice (Kitson, 2018) and highlights interconnectedness between quality nursing practice and patient outcomes and experiences (Feo & Kitson, 2026). The findings of this thesis demonstrate an interconnectedness between the context of care and structural quality, contributing new insights to the relationship between emergency nursing care and crowding. It also provides further empirical evidence supporting the applicability of the Fundamentals of Care framework in ED setting.

Process

Process quality in this thesis was explored through two sides of emergency nursing care – namely, performed and missed care, further divided into fundamental and medical/technical activities. The assessment of process quality requires relevant dimensions, values and standards to be specified in order to evaluate whether medicine (or emergency nursing care in this case) is properly practiced (Donabedian, 2005). This poses some challenges for nursing care, as the care provided is both standardised (i.e. triage) and should depend on each person's specific needs, making it highly versatile. One way to approach the relevant dimensions and values of nursing care was to explore RNs' perceptions of nursing care in the ED. From the RNs in Paper II, a hierarchal and fragmented approach emerged, with the RNs perceiving medical/technical activities as separate from fundamental activities (Paper II). They also viewed maintaining the flow of patients through the ED as important, which resulted in some patient needs being judged more urgent than others and thus prioritised to preserve safety (Paper II). Similar findings were shown in a study by Amritzer et al. (2026). However, in that study, senior RNs and ANs perceived physical, psychosocial and medical interventions as equally essential, although that holds mainly when urgent and non-urgent tasks do not need to be prioritised against each other. In an ED context, RNs' decision-making related to MNC has been described as a continuous process shaped by contextual and moral constraints, rather than as a series of isolated choices between tasks, suggesting that MNC results from prioritisation under constraint rather than negligence. While explicit and readily observable tasks, such as drug administration, are typically completed, less visible aspects of care,

including emotional support, appear to depend on the individual RN's sense of responsibility (He et al., 2026).
The dominant position of medical/technical care in the ED has also been reflected in an newly developed MNC instrument for EDs (Wang et al., 2026).

This hierarchal and fragmented approach was also reflected in clinical practice. Medical/technical activities were performed more often (77%) compared to fundamental care activities (23%). The Medical/technical activities rate was also 27.8% lower when the OR was low compared with shifts with high OR. In contrast, fundamental care activities did not show significant changes when the OR was low compared with shifts with high OR (Paper III). MNC was also a common phenomenon in the ED (Paper I) and was more common among patients visiting a crowded ED and among older patients (Paper III).

Compared with other settings, EDs have the highest prevalence of MNC (Senek et al., 2020). Moreover, MNC appears to disproportionately target fundamental care over medical/technical care (Paper I) (Amritzer et al., 2024; Viana Santana et al., 2025). This finding is in line with Pavedahl et al. (2022), who found task-oriented care to prevail in the emergency room, with fundamental care neither promoted nor prioritised. Similarly, Walsh et al. (2022) found person-centred care lacking in the ED despite such care's potential benefit to patient satisfaction. This pattern of omission mirrors the hierarchal and fragmented approach observed in this thesis (paper II), in which fundamental and medical/technical activities were perceived as separate and unequally prioritised.

Failure to integrate fundamental and medical/technical care may stem from tensions inherent in healthcare systems, which often provide fundamental care in ways that are task driven, siloed and reductionist (Feo & Kitson, 2026). Fundamental care is thus often positioned as an additional problem to address, rather than as a solution for achieving high-quality, person-centred care (Feo & Kitson, 2026). This view was partly echoed in a study by Pavedahl et al. (2024), in which RNs lacked guidelines to use for treating and providing fundamental care to patients with life-threatening illnesses.

One interpretation of the results of this thesis is thus that process quality in the ED is maintained at the expense of RNs departing from a holistic approach to patients' emergency nursing care needs. Fundamental care are deprioritised relative to medical/technical care, placing IOM's quality dimensions of safety and person-centred/equitable care in tension with one another.

Outcome

An important finding in this thesis is that patients' fundamental needs increased with EDLOS and that this development was associated with decreased QoC (Paper IV). This gap between the care patients received and the care they considered important carries implications for two IOM dimensions of quality, as it was the largest among patients with both the highest proportion of fundamental needs and the longest EDLOS. First, regarding the dimension of equity, this finding indicates that care was not equitable across patient groups, given that fundamental needs were heterogeneously distributed across the ED population. Second, regarding person-centredness, since the Fundamentals of Care framework, from which the QPP-FoC-ED instrument was developed, constitutes a valid description of what person-centred care should entail (Feo et al., 2018), the finding indicates that person-centred quality was lowest for this patient group.

Previous research has established an association between extended EDLOS and lower QoC (Morley et al., 2018; Oskvarek et al., 2026). This thesis adds new knowledge: namely, that a crowding metric, EDLOS, is associated with an outcome of care derived from the Fundamentals of Care framework. According to Jones et al. (2021), establishing such an association between a crowding metric and a process or outcome of care is an essential step in ascertaining whether the metric should be used as a quality indicator. This matters, because involving patients contributes to improved clinical outcomes and supports the delivery of person-centred care – an essential aspect of QoC (Bombard et al., 2018; Jamieson Gilmore et al., 2023; Shunmuga Sundaram et al., 2022). This thesis thus addresses a previous gap – namely, the lack of instruments linking the provision of fundamental care to patient outcomes and experiences (Jeffs et al., 2018).

Methodological discussion

To address the overall aim of this thesis, different designs comprising one review (Paper I), a qualitative study (Paper II) and quantitative studies (Paper III & IV) were adopted. This blend of different designs was used to generate new and comprehensive knowledge (Flanagan et al., 2025). The methodological discussion will be conducted in the lens of trustworthiness for Paper II and validity and reliability for Papers III and IV.

Trustworthiness in qualitative studies can be assessed through the quality criteria's credibility, confirmability, dependability and transferability (Flanagan et al., 2025). *Credibility* concerns confidence in the truth of the data and their interpretation (Flanagan et al., 2025). In Paper II, credibility was strengthened by including participants with rich experience of the phenomenon of interest. To achieve this, a purposive sampling approach was used, as knowledge about the population in relation to the sample increased (Flanagan et al., 2025). The RNs' age, sex, level of education and work life experience were the applied inclusion criteria. Compared with convenience sampling, which is the most common procedure used to identify participants in many disciplines, the risk of sampling bias is reduced in purposive sampling, particularly in heterogeneous populations (Flanagan et al., 2025). A further factor that strengthened credibility was that all interviews but one were conducted face-to-face, allowing body language to be observed. One RN was interviewed via Zoom. Although this format may limit the body language to be observed, Anthony et al. (2025) reported comparable levels of data quality and conversational involvement across face-to-face and online interviews. This suggests that the difference in interview mode may not have substantially affected the quality of the data. Credibility was further strengthened by the participating RNs having from one to over 11 years of experience working in EDs. Finally, credibility in phenomenography is closely linked to the empirical data and the descriptive categories. Thus, quotes supporting the variations between similarities and differences were provided (Sjöström & Dahlgren, 2002).

Confirmability concerns objectivity and can be enhanced when data represent participants' viewpoints and when the interpretations of those data are not invented by the researcher (Flanagan et al., 2025). In Paper II, all researchers participated in the phenomenographic analysis, as described by Sjöström and Dahlgren (2002). Continuous discussions among the research members were held, such as during the compilation of the most significant elements of each interview, including the grouping of codes and naming of categories.

Dependability implies stability of data over time and conditions (Flanagan et al., 2025). An interview guide was used, which increased the likelihood that the questions over all the interviews followed the same procedure. A detailed record of the choices made and procedures followed throughout each step of the analysis was maintained, further strengthening the dependability of the findings.

Transferability refers to the extent to which results can be transferred to or applied in other settings or groups (Flanagan et al., 2025). In Paper II, a detailed description of the participants and setting was provided, enabling readers to assess the transferability of the findings to their own context.

The quality criteria of validity and reliability were assessed in Papers III and IV. *Validity* concerns the degree to which inferences made in a study are unbiased and well-founded (Flanagan et al., 2025) and whether an instrument measures what it claims to measure (Field, 2018). Shadish (2002) identified four aspects of validity, of which internal validity, construct validity and external validity are discussed here.

Internal validity concerns whether an observed relationship between variables reflects a true effect rather than the influence of confounding or systematic bias. In Paper III, the patients, RNs and ANs were not randomly selected, which increased the risk of selection bias (Flanagan et al., 2025). Therefore, observed differences between groups may reflect pre-existing differences rather than differences from the variable(s) under study.

Construct validity concerns the inference made from study participants' observed behaviour or responses to the higher-order constructs they are intended to represent. Threats arise if the operationalisation of the construct fails to capture all relevant characteristics (Flanagan et al., 2025). In Paper III, two observation protocols were designed. The patient observation protocol was based on both the Swedish and English versions of the Fundamentals of Care framework, which provides a conceptual understanding of what fundamental care comprises (Feo et al., 2018; Feo et al., 2025; Muntlin & Jangland, 2023). The knowledge in the research group also informed the design of the observation protocols. This is a strength in Paper III as a valid operationalisation. The use of a reductionistic approach reflected in disaggregated tasks presents a challenge to providing fundamental care holistically and can be reinforced by how the approach is researched and measured (Feo & Kitson, 2016). The patient observation protocol did not fully capture the scope of the fundamental care that was intended to be observed, such as the centrality of establishing a relationship, the importance of the context of care, and how the integration of care is mediated by that context (Allande-Cussó et al., 2026). Shadish (2002) identified reactivity to the study situation, often referred to as the Hawthorne effect, as a potential threat to construct validity. That is, participants may alter their behaviour due to their awareness of being observed. This was partly mitigated by collecting data over a prolonged period – a strategy previously used to reduce reactivity to the study situation (Paradis & Sutkin, 2017).

The *construct validity* was assessed in two ways in Paper IV. First, structural validity was assessed through a CFA, which is valuable in that it provides a means of evaluating how well a proposed model fits a given data set (Roos & Bauldry, 2022). In Paper IV, the baseline model was specified based on the theoretical structure of the Fundamentals of Care framework. The model showed poor fit. The model was therefore re-specified, informed by both theoretical and data-driven considerations, although this carries the risk of deviating from a theoretically driven model towards a data-driven, exploratory model (Roos & Bauldry, 2022). For three of the factors, only two items were used. Allowing these factors to correlate freely provided the degrees of

freedom needed to render the model overidentified, thus permitting an assessment of model fit (Kline, 2023). However, with only two indicators, the underlying latent dimension could not be empirically tested. Moreover, fit indices such as RMSEA are sensitive to low degrees of freedom (Kenny et al., 2015), further warranting caution in interpretation. Additional items should therefore be included in future research.

Second, in line with the COSMIN guidelines, construct validity was assessed through hypothesis testing, where known-groups validity constitutes one approach (Mokkink et al., 2010). In Paper IV, the hypothesis was primary derived from three clusters with differing extents of fundamental care needs (66%, 81% and 98%), followed by the identification of varying EDLOSs. However, beyond demonstrating known-groups validity, the purpose of including the analysis was to transparently display two partly competing considerations. First, the ED population is heterogeneous in terms of the extent of the range of fundamental care needs. Muntlin et al. (2006) reported a high proportion of non-applicable responses in a Swedish ED sample. In instrument development, this can imply the exclusion of such items (Graham et al., 2024). A possible disadvantage of excluding items with high non-applicable rates among one cluster of ED patients is that, for those patients in another cluster of ED patients, the instrument loses construct coverage. In Paper IV, this would apply to patients in clusters two and three (n = 157). An alternative approach would be to exclude patients in cluster one (n = 94) when conducting the CFA.

Second, although non-applicable responses are not missing data *per se*, they were handled as such in the CFA. The CFA was conducted using FIML, which estimates model parameters directly from all available data without deleting incomplete cases or imputing values, under missed at random (MAR) conditions (Kline, 2023). A limitation was that less data was available for cluster one than for cluster three. Consequently, to the extent that cluster one differed from cluster three, the difference may not be reflected in the fit indices (CFI, TLI, RMSEA and SRMR). FIML relies on the MAR assumption, which could not be fully substantiated in the absence of auxiliary variables (Kline, 2023), adding some uncertainty to the fit indices.

External validity implies that the relationships observed in a study hold across variations in people, conditions and settings (Flanagan et al., 2025). The non-random sampling strategy used in Papers III and IV limits the generalisability of the results and thus the external validity (Flanagan et al., 2025). In Paper III, the data were collected in one ED. Although this provided in-depth knowledge of that ED, differences among healthcare staff, ED organisations, case mix and catchment area limit the generalisability of the results to other EDs. A strength in Paper IV is that data were collected at more than one site. However, the non-responders (68.4%) introduced a selection bias in that non-responders could differ from responders. This may have implications for the generalisability of the results.

Reliability refers to the accuracy and consistency of information obtained in a study (Flanagan et al., 2025). In Paper III, a limitation was that reliability was not formally evaluated. A single observer performed all observations, which reduced inter-observer error. However, intra-observer reliability, which can be assessed in single-observer designs (Streiner et al., 2024), could not be tested, as direct observation in the ED does not allow the same patient to be evaluated twice under identical conditions.

Internal consistency measures the degree of consistency across items. An instrument is internally consistent to the extent that its items measure the same trait (Flanagan et al., 2025). The internal consistency was evaluated in Paper IV with McDonald's Omega (ω) in factors with three or more items. A strength of using McDonald's omega is that it does not assume essential tau equivalents (Hayes & Coutts, 2020). Furthermore, the Spearman-Brown coefficient was calculated for factors containing two items (Eisinga et al., 2013).

CONCLUSION

The results of this thesis provide a comprehensive exploration of QoC in EDs from the perspectives of patients and healthcare staff, with a particular focus on MNC and emergency nursing care. A range of factors were found to influence MNC. Patient sociodemographic (e.g. age) and organisational data (e.g. EDs operating under crowded conditions and healthcare staff treating patients in shared patient areas) were associated with a higher occurrence of MNC. Among the different types of fundamental needs, patients' physical and psychosocial needs were omitted more often than other needs.

The way in which the RNs structured their practice reflected how they perceived nursing care. RNs perceived medical/technical care activities and acute care needs as hierarchically structured, prioritising them over fundamental care needs. In practice, Medical/technical activities were performed more often (77%) compared to fundamental care activities (23%).

Viewed through the lens of patients' fundamental needs, crowding was associated with reduced QoC. Patients with greater fundamental needs and longer EDLOS reported lower QoC.

CLINICAL IMPLICATIONS

Understanding RNs' perceptions of nursing care may help identify how care is delivered in clinical practice. Regular reflection and discussion regarding RNs' roles and responsibilities could promote greater awareness of nursing care and support practice improvement.

Older patients, as well as those treated during periods of crowding or in shared patient areas, are particularly vulnerable to MNC. RNs should recognise these as risk factors for MNC and advocate for minimising crowding and the use of shared patient areas where possible.

Patients who rated the QoC lowest also reported more fundamental care needs and experienced longer EDLOS of around 9 hours or more. As RNs hold primary responsibility for fundamental care, they are well placed to identify when care needs exceed what the ED is resourced and designed to provide. The Fundamentals of Care framework may support RNs in articulating how needs and resources diverge. Early recognition may help prevent such mismatches. Where prevention is not possible, systematic incident reporting makes the problem visible at an organisational level and provides a basis for quality improvement.

Crowding in EDs stems from systemic tensions across the healthcare sector, yet this thesis shows that its consequences – including MNC and decreased QoC – manifest within the ED itself. Reducing crowding therefore requires coordinated action across the healthcare sector alongside efforts within the ED.

FUTURE RESEARCH

Future research should first quantify the prevalence of cognitive dissonance in this context, as the findings indicated the presence of cognitive dissonance among RNs, and should subsequently examine its association with MNC and QoC.

A comprehensive assessment of MNC in the ED requires research on both fundamental and medical/technical care needs. Two separate instruments may therefore be warranted. For fundamental care needs, an existing English-language instrument focusing on whether care was provided could be translated and psychometrically tested in a Swedish context. For medical/technical care, however, validated instruments are largely lacking, and future research should prioritise their development.

Problems related to pain management and information provision were recurring findings across Papers I–III, and QoC within these areas was found to be lower in Paper IV. Furthermore, patients with an extended EDLOS were shown to have more extensive care needs in Papers II and IV. Interventions targeting these areas should therefore be prioritised in future research.

The QPP-FoC-ED needs further revision, primarily by adding items to factors, which currently comprise only two items under only one workgroup.

ACKNOWLEDGEMENTS

This is my opportunity to express my gratitude to some of the people who made this thesis possible to complete.

First and foremost, I am sincerely grateful to the patients who participated in the studies in this thesis. I am grateful to all the registered nurses and other healthcare staff: despite the immense workload you often faced, you also found time for this research. Hopefully, to some extent, this thesis can frame the complex work you do and what is at stake when capacity does not match demand. A special thanks goes to Linda Sävman and André Johansson for your valuable work in Paper IV. In addition, a special thanks goes to the management team at the Emergency Department in Karlstad. Without your support, this thesis would not have been completed.

This thesis was completed thanks to four women (I will return to the fourth a bit later):

Carina Bååth, my main supervisor: I am so grateful for this time. You have an extraordinary ability to create a learning environment built on trust and confidence. On top of that, you always managed to be available and made me feel seen.

Kaisa Bjuresäter, my co-supervisor: Thank you for opening the door to qualitative research. I'm still impressed by how quickly you grasp complex topics and narrow them down to what actually matters – how it benefits the patient. You set a high standard and require the people around you to meet it. For me, this was important.

Ami Hommel, my co-supervisor. Thank you for your sharp and critical eye. I am grateful to have had the opportunity to learn from your vast experience.

Helen Wadensjö: Thank you for your work in facilitating my employment at Karlstad University.

To all the PhD students at Forskarskolan hälsa, thank you for all your valuable input over the years and for all the good memories. A big shoutout goes to Jari Appelgren for your statistical expertise during these years. Thank you, Veronica Pavadahl, for the cappuccinos and for contributing your in-depth knowledge about acute care and the Fundamentals of Care framework during my thesis.

To my dear family:

Olivia, Ellen och William. Tänk så kul vi har haft de här fem och ett halvt åren. Vi har rest, badat och skrattat. Köpt en häst och en hund. Och så kom du, William, mitt i alltihop. Under tiden har jag skrivit den här boken. Även om ni inte har märkt det så har ni gjort arbetet lättare och mer meningsfullt. Tack för det, jag älskar er.

Lastly, to the fourth woman, and the most important person for the completion of this thesis. Marie, without you, I would neither have embarked on nor finished a project like this. Thank you for your patience, I love you.

REFERENCES

af Ugglas, B., Lindmarker, P., Ekelund, U., Djärv, T., & Holzmann, M. J. (2021). Emergency department crowding and mortality in 14 Swedish emergency departments, a cohort study leveraging the Swedish Emergency Registry (SVAR). *PLoS One*, *16*(3), e0247881. https://doi.org/10.1371/journal.pone.0247881

Aiken, L. H., Clarke, S. P., & Sloane, D. M. (2001). Hospital restructuring: Does it adversely affect care and outcomes? *Journal of Health and Human Services Administration*, *23*(4), 416-442. https://doi.org/10.1177/107937390102300403

Allande-Cussó, R., Pinero de Plaza, M. A., Kitson, A., Feo, R., Conroy, T., & Porcel-Gálvez, A. M. (2026). How context shapes person-centred fundamental care through nurse–patient relationships: Validation of the FoC Intelligence Modelling Tool and predictive pathway analysis. *Journal of Advanced Nursing*, *82*(7), 7200-7210. https://doi.org/10.1111/jan.70335

American College of Emergency Physicians. (2018). *Definition of boarded patient*. https://www.acep.org/siteassets/new-pdfs/policy-statements/definition-of-boarded-patient.pdf

American College of Emergency Physicians. (2019). *ACEP policy statement on crowding*. https://www.acep.org/globalassets/new-pdfs/policy-statements/crowding.pdf

American College of Emergency Physicians. (2021). *Definition of an emergency service*. https://www.acep.org/siteassets/new-pdfs/policy-statements/definition-of-an-emergency-service.pdf

Amritzer, M. A., Göransson, K. E., Berg, L. M., & Nymark, C. (2024). A new perspective on missed nursing care in the emergency department: A descriptive cross-sectional study. *Journal of Emergency Nursing*, *50*(3), 392-402. https://doi.org/10.1016/j.jen.2023.12.006

Amritzer, M. A., Göransson, K. E., Nymark, C., & Berg, L. M. (2026). Experienced nurses' perceptions of essential nursing care in the emergency department - A focus group study. *International Emergency Nursing*, *86*, 101795. https://doi.org/10.1016/j.ienj.2026.101795

Amritzer, M. A., Muntlin, Å., Berg, L. M., & Göransson, K. E. (2021). Nursing staff ratio and skill mix in Swedish emergency departments: A national cross-sectional benchmark study. *Journal of Nursing Management*, *29*(8), 2594-2602. https://doi.org/10.1111/jonm.13424

Andersson, H., Jakobsson, E., Furåker, C., & Nilsson, K. (2012). The everyday work at a Swedish emergency department--the practitioners' perspective. *International Emergency Nursing*, *20*(2), 58-68. https://doi.org/10.1016/j.ienj.2011.06.007

Andersson, H., Sundström, B. W., Nilsson, K., & Jakobsson Ung, E. (2014). Competencies in Swedish emergency departments - The practitioners' and managers' perspective. *International Emergency Nursing*, *22*(2), 81-87. https://doi.org/10.1016/j.ienj.2013.06.005

Anthony, K., Miller-Day, M., Dupuy, M., Ventura, J., Hodges, A. L., Alonso-Pecora, D., & Dimas, H. (2025). Is there really a difference? A comparison of in-person and online qualitative interviews. *International Journal of Qualitative Methods*, *24*, 16094069251349580. https://doi.org/10.1177/16094069251349580

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, *8*(1), 19-32. https://doi.org/10.1080/1364557032000119616

Asplin, B. R., Magid, D. J., Rhodes, K. V., Solberg, L. I., Lurie, N., & Camargo, C. A., Jr. (2003). A conceptual model of emergency department crowding. *Annals of Emergency Medicine*, *42*(2), 173-180. https://doi.org/10.1067/mem.2003.302

Ausserhofer, D., Zander, B., Busse, R., Schubert, M., De Geest, S., Rafferty, A. M., Ball, J., Scott, A., Kinnunen, J., Heinen, M., Sjetne, I. S., Moreno-Casbas, T., Kózka, M., Lindqvist, R., Diomidous, M., Bruyneel, L., Sermeus, W., Aiken, L. H., & Schwendimann, R. (2014). Prevalence, patterns and predictors of nursing care left undone in European hospitals: Results from the multicountry cross-sectional RN4CAST study. *BMJ Quality & Safety, 23*(2), 126-135. https://doi.org/10.1136/bmjqs-2013-002318

Azzellino, G., Dante, A., Petrucci, C., Caponnetto, V., Aitella, E., Lancia, L., Ginaldi, L., & De Martinis, M. (2025). Intention to leave and missed nursing care: A scoping review. *International Journal of Nursing Studies Advances*, *8*, 100312. https://doi.org/10.1016/j.ijnsa.2025.100312

Badr, S., Nyce, A., Awan, T., Cortes, D., Mowdawalla, C., & Rachoin, J. S. (2022). Measures of emergency department crowding, A systematic review. How to Make Sense of a Long List. *Open Access Emergency Medicine*, *14*, 5-14. https://doi.org/10.2147/oaem.S338079

Ball, J. E., Bruyneel, L., Aiken, L. H., Sermeus, W., Sloane, D. M., Rafferty, A. M., Lindqvist, R., Tishelman, C., & Griffiths, P. (2018). Post-operative mortality, missed care and nurse staffing in nine countries: A cross-sectional study. *International Journal of Nursing Studies*, *78*, 10-15. https://doi.org/10.1016/j.ijnurstu.2017.08.004

Barnard, A. (2000). Alteration to will as an experience of technology and nursing. *Journal of Advanced Nursing*, *31*(5), 1136-1144. https://doi.org/10.1111/j.1365-2648.2000.tb03460.x

Barnard, A., McCosker, H., & Gerber, R. (1999). Phenomenography: A qualitative research approach for exploring understanding in health care. *Qualitative Health Research*, *9*(2), 212-226. https://doi.org/10.1177/104973299129121794

Beavers, A. S., Lounsbury, J. W., Richards, J. K., Huck, S. W., Skolits, G. J., & Esquivel, S. L. (2013). Practical considerations for using exploratory factor analysis in educational research. *Practical Assessment, Research, and Evaluation*, *18*(1). https://doi.org/10.7275/qv2q-rk76

Bell, A., Toloo, G.-S., Crilly, J., Burke, J., Williams, G., McCann, B., & FitzGerald, G. (2019). Emergency department models of care in Queensland: A multisite cross-sectional study. *Australian Health Review*, *43*(4), 363-370. https://doi.org/10.1071/ah17233

Benjamin, E. (2024). The work of patient flow management: A grounded theory study of emergency nurses. *International Emergency Nursing*, *74*, 101457. https://doi.org/10.1016/j.ienj.2024.101457

Benjamin, E., & Wolf, L. A. (2022). "Nurses are every bit of the flow:" Emergency department nurses' conceptualization of patient flow management. *Nursing Forum*, *57*(6), 1407-1414. https://doi.org/10.1111/nuf.12834

Berg, L., Ehrenberg, A., Florin, J., Ostergren, J., & Göransson, K. (2012). An observational study of activities and multitasking performed by clinicians in two Swedish emergency departments. *European Journal of Emergency Medicine*, *19*(4), 246-251. https://doi.org/10.1097/MEJ.0b013e32834c314a

Berg, L., Ehrenberg, A., Florin, J., Östergren, J., Discacciati, A., & Göransson, K. (2019). Associations between crowding and ten-day mortality among patients allocated lower triage acuity levels without need of acute hospital care on departure from the emergency department. *Annals of Emergency Medicine*, *74*(3), 345-356. https://doi.org/10.1016/j.annemergmed.2019.04.012

Bernstein, S. L., Aronsky, D., Duseja, R., Epstein, S., Handel, D., Hwang, U., McCarthy, M., McConnell, K. J., Pines, J. M., Rathlev, N., Schafermeyer, R., Zwemer, F., Schull, M., Asplin, B. R., & Society for Academic Emergency Medicine, Emergency Department Crowding Task Force. (2009). The effect of emergency department crowding on clinically oriented outcomes. *Academic Emergency Medicine*, *16*(1), 1-10. https://doi.org/10.1111/j.1553-2712.2008.00295.x

Bjurbo, C., Eriksson, U., & Muntlin, Å. (2026). Frail older patients' experiences during boarding in the emergency department: A qualitative study. *Journal of Advanced Nursing*, *82*(5), 5244-5255. https://doi.org/10.1111/jan.70173

Blay, N., & Roche, M. A. (2020). A systematic review of activities undertaken by the unregulated nursing assistant. *Journal of Advanced Nursing*, *76*(7), 1538-1551. https://doi.org/10.1111/jan.14354

Bombard, Y., Baker, G. R., Orlando, E., Fancott, C., Bhatia, P., Casalino, S., Onate, K., Denis, J.-L., & Pomey, M.-P. (2018). Engaging patients to improve quality of care: A systematic review. *Implementation Science*, *13*(1), 98. https://doi.org/10.1186/s13012-018-0784-z

Carthey, J. (2003). The role of structured observational research in health care. *Quality & Safety in Health Care*, *12*(Suppl. 2), ii13-ii16. https://doi.org/10.1136/qhc.12.suppl_2.ii13

Chaboyer, W., Harbeck, E., Lee, B.-O., & Grealish, L. (2021). Missed nursing care: An overview of reviews. *The Kaohsiung Journal of Medical Sciences*, *37*(2), 82-91. https://doi.org/10.1002/kjm2.12308

Chiappinotto, S., Papastavrou, E., Efstathiou, G., Andreou, P., Stemmer, R., Ströhm, C., Schubert, M., de Wolf-Linder, S., Longhini, J., & Palese, A. (2022). Antecedents of unfinished nursing care: A systematic review of the literature. *BMC Nursing*, *21*(1), 137. https://doi.org/10.1186/s12912-022-00890-6

Curtis, K., Brysiewicz, P., Shaban, R. Z., Fry, M., Considine, J., Gamboa, F. E. A., Holden, M., Heyns, T., & Peden, M. (2020). Nurses responding to the World Health Organization (WHO) priority for emergency care systems for universal health coverage. *International Emergency Nursing*, *50*, 100876. https://doi.org/10.1016/j.ienj.2020.100876

Dahlgren, L., & Fallsberg, M. B. (1991). Phenomenography as a qualitative approach in social pharmacy research. *Journal of Social and Administrative Pharmacy, 8*(4), 150-156.

Darraj, A., Hudays, A., Hazazi, A., Hobani, A., & Alghamdi, A. (2023). The association between emergency department overcrowding and delay in treatment: A systematic review. *Healthcare*, *11*(3). https://doi.org/10.3390/healthcare11030385

de Groot, B., Meijs, N. T. C., Moscova, M., Raven, W., Gaakeer, M. I., Thijssen, W. A. M. H., Lameijer, H., Shetty, A., & Lassen, A. T. (2024). Characteristics and outcomes of emergency department patients across health care systems: An international multicenter cohort study. *International Journal of Emergency Medicine*, *17*(1), 123. https://doi.org/10.1186/s12245-024-00715-0

Dello, S., De Smet, K., & Sermeus, W. (2025). Unravelling the conceptualisation of unfinished care among physicians in acute care hospitals: A scoping review. *BMJ Open*, *15*(12), e101423. https://doi.org/10.1136/bmjopen-2025-101423

DeVellis, R. F., & Thorpe, C. T. (2022). *Scale development: Theory and applications* (5th ed.). SAGE.

Donabedian, A. (1988). The quality of care. How can it be assessed? *JAMA*, *260*(12), 1743-1748. https://doi.org/10.1001/jama.260.12.1743

Donabedian, A. (2005). Evaluating the quality of medical care. 1966. *Milbank Quarterly*, *83*(4), 691-729. https://doi.org/10.1111/j.1468-0009.2005.00397.x

Drennan, J., Murphy, A., McCarthy, V. J. C., Ball, J., Duffield, C., Crouch, R., Kelly, G., Loughnane, C., Murphy, A., Hegarty, J., Brady, N., Scott, A., & Griffiths, P. (2024). The association between nurse staffing and quality of care in emergency departments: A systematic review. *International Journal of Nursing Studies*, *153*, 104706. https://doi.org/10.1016/j.ijnurstu.2024.104706

Duhalde, H., Bjuresäter, K., Karlsson, I., & Bååth, C. (2023). Missed nursing care in emergency departments: A scoping review. *International Emergency Nursing*, *69*, 101296. https://doi.org/10.1016/j.ienj.2023.101296

Eisinga, R., te Grotenhuis, M., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health*, *58*(4), 637-642. https://doi.org/10.1007/s00038-012-0416-3

Elmqvist, C., Fridlund, B., & Ekebergh, M. (2012). Trapped between doing and being: First providers' experience of "front line" work. *International Emergency Nursing*, *20*(3), 113-119. https://doi.org/10.1016/j.ienj.2011.07.007

Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling*, *8*(3), 430-457. https://doi.org/10.1207/S15328007SEM0803_5

Eriksson, J., Gellerstedt, L., Hillerås, P., & Craftman, Å. G. (2018). Registered nurses' perceptions of safe care in overcrowded emergency departments. *Journal of Clinical Nursing*, *27*(5-6), e1061-e1067. https://doi.org/10.1111/jocn.14143

Erwander, K., Ivarsson, K., Olsson, M. L., & Agvall, B. (2024). Elderly patients with non-specific complaints at the emergency department have a high risk for admission and 30-days mortality. *BMC Geriatrics*, *24*(1), 5. https://doi.org/10.1186/s12877-023-04621-7

Fawcett, J., Watson, J., Neuman, B., Walker, P. H., & Fitzpatrick, J. J. (2001). On nursing theories and evidence. *Journal of Nursing Scholarship*, *33*(2), 115-119. https://doi.org/10.1111/j.1547-5069.2001.00115.x

Feo, R., Conroy, T., Jangland, E., Muntlin Athlin, Å., Brovall, M., Parr, J., Blomberg, K., & Kitson, A. (2018). Towards a standardised definition for fundamental care: A modified Delphi study. *Journal of Clinical Nursing*, *27*(11-12), 2285-2299. https://doi.org/10.1111/jocn.14247

Feo, R., Conroy, T., Laugesen, B., Voldbjerg, S. L., Gronkjaer, M., Jensen, K., Ahad, M. A., Thomas, J., Kitson, A., & Lerbaek, B. (2025). Assessing the complexity of fundamental care: Developing and refining the Flinders Fundamentals of Care Assessment Tool for clinical practice. *Journal of Advanced Nursing*, *81*(12), 8972-8989. https://doi.org/10.1111/jan.16919

Feo, R., & Kitson, A. (2016). Promoting patient-centred fundamental care in acute healthcare systems. *International Journal of Nursing Studies*, *57*, 1-11. https://doi.org/10.1016/j.ijnurstu.2016.01.006

Feo, R., & Kitson, A. (2026). Delivering on person-centred fundamental care: How far have we (really) come? A 10-year retrospective. *International Journal of Nursing Studies*, *183*, 105642. https://doi.org/10.1016/j.ijnurstu.2026.105642

Field, A. P. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage Publications.

Fix, G. M., Kim, B., Ruben, M. A., & McCullough, M. B. (2022). Direct observation methods: A practical guide for health researchers. *PEC Innovation*, *1*, 100036. https://doi.org/10.1016/j.pecinn.2022.100036

Flanagan, J., Beck, C. T., & Polit, D. F. (2025). *Polit and Beck's nursing research: Generating and assessing evidence for nursing practice* (12th ed.). Wolters Kluwer.

Fry, M. (2008). Overview of emergency nursing in Australasia. *International Emergency Nursing*, *16*(4), 280-286. https://doi.org/10.1016/j.ienj.2008.01.003

Fry, M., Curtis, K., Considine, J., & Shaban, R. Z. (2017). Using observation to collect data in emergency research. *Australasian Emergency Nursing Journal*, *20*(1), 25-30. https://doi.org/10.1016/j.aenj.2017.01.001

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*, *13*, 117. https://doi.org/10.1186/1471-2288-13-117

Gentili, S., Emberti Gialloreti, L., Riccardi, F., Scarcella, P., & Liotta, G. (2021). Predictors of emergency room access and not urgent emergency room access by the frail older adults. *Frontiers in Public Health*, *9*, 721634. https://doi.org/10.3389/fpubh.2021.721634

Gong, F., Mei, Y., Wu, M., & Tang, C. (2025). Global reasons for missed nursing care: A systematic review and meta-analysis. *International Nursing Review*, *72*(1), e13096. https://doi.org/10.1111/inr.13096

Graham, B., Smith, J. E., Wei, Y., Nelmes, P., & Latour, J. M. (2024). Psychometric validation of a patient-reported experience measure for older adults attending the emergency department: The PREM-ED 65 study. *Emergency Medicine Journal*, *41*(11), 645-653. https://doi.org/10.1136/emermed-2023-213521

Griffiths, P., Ball, J., Bloor, K., Böhning, D., Briggs, J., Dall'Ora, C., de Iongh, A., Jones, J., Kovacs, C., Maruotti, A., Meredith, P., Prytherch, D., Recio-Saucedo, A., Redfern, O., Schmidt, P., Sinden, N., & Smith, G. (2018). *Nurse staffing levels, missed vital signs and mortality in hospitals: Retrospective longitudinal observational study* (Health Services and Delivery Research, Vol. 6, No. 38). NIHR Journals Library. https://doi.org/10.3310/hsdr06380

Griffiths, P., Recio-Saucedo, A., Dall'Ora, C., Briggs, J., Maruotti, A., Meredith, P., Smith, G. B., Ball, J., & the Missed Care Study Group. (2018). The association between nurse staffing and omissions in nursing care: A systematic review. *Journal of Advanced Nursing, 74*(7), 1474-1487. https://doi.org/10.1111/jan.13564

Guly, H. (2005). *A history of accident and emergency medicine, 1948-2004*. Palgrave Macmillan. https://doi.org/10.1057/9780230000742

Göransson, K. E., Drennan, J., Mainz, H., Fauerholdt Skov, N., Amritzer, M., Berg, L. M., Andersen, K. V., & Lisby, M. (2024). The scope of emergency nursing viewed through the lens of complex adaptive systems: A discussion paper. *International Journal of Nursing Studies Advances*, *8*, 100270. https://doi.org/10.1016/j.ijnsa.2024.100270

Habbouche, S., Carlson, T., Johansson, D., Kjaerbeck, S., Malm, M., Svensson, P. A., & Holmqvist, L. (2022). Comparison of the novel WEst coast System for Triage (WEST) with Rapid Emergency Triage and Treatment System (RETTS©): An observational pilot study. *International Journal of Emergency Medicine*, *15*(1), 47. https://doi.org/10.1186/s12245-022-00452-2

Hayes, A. F., & Coutts, J. J. (2020). Use omega rather than Cronbach's alpha for estimating reliability. But… *Communication Methods and Measures*, *14*(1), 1-24. https://doi.org/10.1080/19312458.2020.1718629

He, M., Ning, X., Dong, Y., Zhu, X., & Sun, J. (2026). Understanding the decision-making experiences of missed nursing care for emergency nurses. *Journal of Emergency Nursing*. https://doi.org/10.1016/j.jen.2026.09.007

He, W., Yuan, H., Luo, W., Hou, M., Liu, M., Xue, H., & Zhang, X. (2025). The relationship between different missed care activities and patient outcomes: A systematic review. *International Journal of Nursing Studies*, *171*, 105183. https://doi.org/10.1016/j.ijnurstu.2025.105183

Heng, L. M. T., Rajasegeran, D. D., & Lim, S. H. (2024). Evaluation of nurse-reported missed care in a post-anesthesia care unit: A mixed-methods study. *Journal of Nursing Scholarship*, *56*(4), 542-553. https://doi.org/10.1111/jnu.12975

Hoot, N. R., & Aronsky, D. (2008). Systematic review of emergency department crowding: Causes, effects, and solutions. *Annals of Emergency Medicine*, *52*(2), 126-136. https://doi.org/10.1016/j.annemergmed.2008.03.014

Hruska, K., Castrén, M., Banerjee, J., Behringer, W., Bjørnsen, L. P., Cameron, P., Einav, S., Holroyd, B. R., Jones, P., Lassen, A., Truesdale, M., & Kurland, L. (2019). Template for uniform reporting of emergency department measures, consensus according to the Utstein method. *European Journal of Emergency Medicine*, *26*(6), 417–422. https://doi.org/10.1097/MEJ.0000000000000582

Hyrkäs, K., Koivula, M., Lehti, K., & Paunonen-Ilmonen, M. (2003). Nurse managers' conceptions of quality management as promoted by peer supervision. *Journal of Nursing Management*, *11*(1), 48-58. https://doi.org/10.1046/j.1365-2834.2003.00345.x

Institute of Medicine. (1990). *Medicare: A strategy for quality assurance* (K. N. Lohr, Ed.; Vol. 1). National Academy Press. https://doi.org/10.17226/1547

Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. National Academy Press. https://doi.org/10.17226/10027

International Council of Nurses. (2021). *The ICN code of ethics*. https://www.icn.ch/sites/default/files/2023-06/ICN_Code-of-Ethics_EN_Web.pdf

International Council of Nurses. (2026). *Definition of 'Nursing' and a 'Nurse'*. International Council of Nurses Retrieved from https://www.icn.ch/sites/default/files/2026-04/Definition%20of%20'Nursing'%20and%20a%20'Nurse'%20Position%20statement%20FINAL.pdf

Jamieson Gilmore, K., Corazza, I., Coletta, L., & Allin, S. (2023). The uses of patient reported experience measures in health systems: A systematic narrative review. *Health Policy*, *128*, 1-10. https://doi.org/10.1016/j.healthpol.2022.07.008

Javidan, A. P., Hansen, K., Higginson, I., Jones, P., Lang, E., & IFEM Task Force on Emergency Department Crowding and Access Block. (2021). The International Federation for Emergency Medicine report on emergency department crowding and access block: A brief summary. *Emergency Medicine Australasia, 33*(1), 161-163. https://doi.org/10.1111/1742-6723.13660

Jeffs, L., Muntlin Athlin, Å., Needleman, J., Jackson, D., & Kitson, A. (2018). Building the foundation to generate a fundamental care standardised data set. *Journal of Clinical Nursing*, *27*(11-12), 2481-2488. https://doi.org/10.1111/jocn.14308

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14-26. https://doi.org/10.3102/0013189x033007014

Jones, P. G., Mountain, D., & Forero, R. (2021). Review article: Emergency department crowding measures associations with quality of care: A systematic review. *Emergency Medicine Australasia*, *33*(4), 592-600. https://doi.org/10.1111/1742-6723.13743

Jones, T. L., Hamilton, P., & Murry, N. (2015). Unfinished nursing care, missed care, and implicitly rationed care: State of the science review. *International Journal of Nursing Studies*, *52*(6), 1121-1137. https://doi.org/10.1016/j.ijnurstu.2015.02.012

Kalisch, B. J. (2006). Missed nursing care: A qualitative study. *Journal of Nursing Care Quality*, *21*(4), 306-315. https://doi.org/10.1097/00001786-200610000-00006

Kalisch, B. J., Landstrom, G. L., & Hinshaw, A. S. (2009). Missed nursing care: A concept analysis. *Journal of Advanced Nursing*, *65*(7), 1509-1517. https://doi.org/10.1111/j.1365-2648.2009.05027.x

Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2015). The performance of RMSEA in models with small degrees of freedom. *Sociological Methods & Research*, *44*(3), 486-507. https://doi.org/10.1177/0049124114543236

Kiekkas, P., Tsekoura, V., Fligou, F., Tzenalis, A., Michalopoulos, E., & Voyagis, G. (2021). Missed nursing care in the postanesthesia care unit: A cross-sectional study. *Journal of Perianesthesia Nursing*, *36*(3), 232-237. https://doi.org/10.1016/j.jopan.2020.10.009

Kitson, A., Conroy, T., Kuluski, K., Locock, L., & Lyons, R. (2013). *Reclaiming and redefining the fundamentals of care: Nursing's response to meeting patients' basic human needs*. School of Nursing, the University of Adelaide.

Kitson, A. L. (2018). The fundamentals of care framework as a point-of-care nursing theory. *Nursing Research*, *67*(2), 99-107. https://doi.org/10.1097/nnr.0000000000000271

Kitson, A., Conroy, T., Wengstrom, Y., Profetto-McGrath, J., & Robertson-Malt, S. (2010). Defining the fundamentals of care. *International Journal of Nursing Practice*, *16*(4), 423-434. https://doi.org/10.1111/j.1440-172X.2010.01861.x

Kline, R. B. (2023). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.

Larsson, B. W., & Larsson, G. (2002). Development of a short form of the Quality from the Patient's Perspective (QPP) questionnaire. *Journal of Clinical Nursing*, *11*(5), 681-687. https://doi.org/10.1046/j.1365-2702.2002.00640.x

Larsson, G., & Wilde Larsson, B. (2017). Vårdkvalitet och patienttillfredsställelse. I A.-M. Boström, G. Nordström & B. Wilde Larsson (Red.), *Kvalitetsarbete för bättre och säkrare vård* (2 uppl., pp. 79-106). Studentlitteratur.

Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: Advancing the methodology. *Implementation Science*, *5*(1), 69. https://doi.org/10.1186/1748-5908-5-69

Malmer, G., Fällman, A., Åhlberg, R., Svensson, P., Westerlund, E., & af Ugglas, B. (2025). Individual patient sociodemographic characteristics are associated with waiting time to physician assessment in seven Swedish emergency departments: An observational 5-year cohort study of emergency department visits in the Stockholm region. *JACEP Open, 6*(6), 100250. https://doi.org/10.1016/j.acepjo.2025.100250

Marton, F. (1981). Phenomenography — Describing conceptions of the world around us. *Instructional Science*, *10*(2), 177-200. https://doi.org/10.1007/BF00132516

Marton, F., & Booth, S. (1997). *Learning and awareness*. Routledge. https://doi.org/10.4324/9780203053690

McCarthy, M. L., Aronsky, D., Jones, I. D., Miner, J. R., Band, R. A., Baren, J. M., Desmond, J. S., Baumlin, K. M., Ding, R., & Shesser, R. (2008). The emergency department occupancy rate: A simple measure of emergency department crowding? *Annals of Emergency Medicine*, *51*(1), 15-24. https://doi.org/10.1016/j.annemergmed.2007.09.003

McCormack, B., McCance, T., Bulley, C., & Brown, D. (2021). *Fundamentals of person-centred healthcare practice*. Wiley.

McIntyre, D., & Chow, C. K. (2020). Waiting time as an indicator for health services under strain: A narrative review. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, *57*, 0046958020910305. https://doi.org/10.1177/0046958020910305

Mills, A. M., Shofer, F. S., Chen, E. H., Hollander, J. E., & Pines, J. M. (2009). The association between emergency department crowding and analgesia administration in acute abdominal pain patients. *Academic Emergency Medicine*, *16*(7), 603-608. https://doi.org/10.1111/j.1553-2712.2009.00441.x

Mokkink, L. B., Terwee, C. B., Patrick, D. L., Alonso, J., Stratford, P. W., Knol, D. L., Bouter, L. M., & de Vet, H. C. (2010). The COSMIN study reached international consensus on taxonomy, terminology, and definitions of measurement properties for health-related patient-reported outcomes. *Journal of Clinical Epidemiology*, *63*(7), 737-745. https://doi.org/10.1016/j.jclinepi.2010.02.006

Morley, C., Unwin, M., Peterson, G. M., Stankovich, J., & Kinsman, L. (2018). Emergency department crowding: A systematic review of causes, consequences and solutions. *PLoS One*, *13*(8), e0203316. https://doi.org/10.1371/journal.pone.0203316

Mudd, A., Feo, R., Conroy, T., & Kitson, A. (2020). Where and how does fundamental care fit within seminal nursing theories: A narrative review and synthesis of key nursing concepts. *Journal of Clinical Nursing*, *29*(19-20), 3652-3666. https://doi.org/10.1111/jocn.15420

Munir Ehrlington, S., Hörlin, E., Toll John, R., Wretborn, J., & Wilhelms, D. (2024). Frailty is associated with 30-day mortality: A multicentre study of Swedish emergency departments. *Emergency Medicine Journal*, *41*(9), 514–519. https://doi.org/10.1136/emermed-2023-213444

Munroe, B., Curtis, K., Considine, J., & Buckley, T. (2013). The impact structured patient assessment frameworks have on patient care: An integrative review. *Journal of Clinical Nursing*, *22*(21-22), 2991-3005. https://doi.org/10.1111/jocn.12226

Munroe, B., Curtis, K., Murphy, M., Strachan, L., & Buckley, T. (2015). HIRAID: An evidence-informed emergency nursing assessment framework. *Australasian Emergency Nursing Journal*, *18*(2), 83-97. https://doi.org/10.1016/j.aenj.2015.02.001

Muntlin, Å., Gunningberg, L., & Carlsson, M. (2006). Patients' perceptions of quality of care at an emergency department and identification of areas for quality improvement. *Journal of Clinical Nursing*, *15*(8), 1045-1056. https://doi.org/10.1111/j.1365-2702.2006.01368.x

Muntlin, Å., & Jangland, E. (2023). Translation and cultural adaptation of the fundamentals of care framework: Are we there yet? *Journal of Advanced Nursing*, *79*(3), 1107-1118. https://doi.org/10.1111/jan.15383

Musy, S. N., Endrich, O., Leichtle, A. B., Griffiths, P., Nakas, C. T., & Simon, M. (2021). The association between nurse staffing and inpatient mortality: A shift-level retrospective longitudinal study. *International Journal of Nursing Studies*, *120*, 103950. https://doi.org/10.1016/j.ijnurstu.2021.103950

National Emergency Nurses' Association. (2025). *Emergency nursing standards of Canadian practice* [Report]. https://nena.ca/wp-content/uploads/2025/10/NENA-ED-NURSING-STANDARDS-FINAL-2025_04_03_compressed.pdf

Nowell, L. (2015). Pragmatism and integrated knowledge translation: Exploring the compatabilities and tensions. *Nursing Open*, *2*(3), 141-148. https://doi.org/10.1002/nop2.30

OECD. (2025). *Health at a glance 2025: OECD indicators*. https://doi.org/10.1787/8f9e3f98-en

Oskvarek, J. J., Leubitz, A., Rahman, N., Sure, B., & Pines, J. M. (2026). Emergency department crowding in the modern era: A systematic review (2018–2025). *Clinical and Experimental Emergency Medicine*, *13*(2), 119-139. https://doi.org/10.15441/ceem.25.172

Palese, A., Longhini, J., & Danielis, M. (2021). To what extent unfinished nursing care tools coincide with the discrete elements of the fundamentals of care framework? A comparative analysis based on a systematic review. *Journal of Clinical Nursing*, *30*(1-2), 239-265. https://doi.org/10.1111/jocn.15543

Paradis, E., & Sutkin, G. (2017). Beyond a good story: From Hawthorne effect to reactivity in health professions education research. *Medical Education*, *51*(1), 31-39. https://doi.org/10.1111/medu.13122

Pavedahl, V., Holmström, I. K., Summer Meranius, M., von Thiele Schwarz, U., & Muntlin, Å. (2021). Fundamentals of care in the emergency room - An ethnographic observational study. *International Emergency Nursing*, *58*, 101050. https://doi.org/10.1016/j.ienj.2021.101050

Pavedahl, V., Holmström, I., Summer Meranius, M., von Thiele Schwarz, U., & Muntlin, Å. (2024). Guidelines for patient care used by registered nurses in the emergency room: Mapping of Swedish governing documents. *International Emergency Nursing*, *77*, 101536. https://doi.org/10.1016/j.ienj.2024.101536

Pavedahl, V., Muntlin, Å., Summer Meranius, M., von Thiele Schwarz, U., & Holmström, I. K. (2022). Prioritizing and meeting life-threateningly ill patients' fundamental care needs in the emergency room-An interview study with registered nurses. *Journal of Advanced Nursing*, *78*(7), 2165-2174. https://doi.org/10.1111/jan.15172

Pavedahl, V., Muntlin, Å., Von Thiele Schwarz, U., Summer Meranius, M., & Holmström, I. K. (2024). Fundamental care in the emergency room: Insights from patients with life-threatening conditions in the emergency room. *BMC Emergency Medicine*, *24*(1), 217. https://doi.org/10.1186/s12873-024-01133-4

Peters, M. D. J., Marnie, C., Tricco, A. C., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, C. M., & Khalil, H. (2020). Updated methodological guidance for the conduct of scoping reviews. *JBI Evidence Synthesis*, *18*(10), 2119-2126. https://doi.org/10.11124/jbies-20-00167

Provost, J., Gosselin, É., & Rochefort, C. M. (2026). The omission of nursing care in emergency departments: A conceptual analysis using Walker & Avant's methodology. *Journal of Advanced Nursing*, *82*(2), 1750–1759. https://doi.org/10.1111/jan.17017

R Core Team. (2024). *R: A language and environment for statistical computing* [Computer software]. R Foundation for Statistical Computing. https://www.R-project.org/

Rantala, A., Nordh, S., Dvorani, M., & Forsberg, A. (2021). The meaning of boarding in a Swedish accident & emergency department: A qualitative study on patients' experiences of awaiting admission. *Healthcare*, *9*(1), 66. https://doi.org/10.3390/healthcare9010066

Riksföreningen för Akutsjuksköterskor, & Svensk Sjuksköterskeförening. (2017). *Kompetensbeskrivning Legitimerad sjuksköterska med specialistsjuksköterskeexamen med inriktning mot akutsjukvård [Description of Competence for Registered Nurse with Graduate Diploma in Specialist Nursing - Emergency Care]*. Svensk Sjuksköterskeförening.

Rooddehghan, Z., Karimi, H., Mohammadnejad, E., Sayadi, L., Haghani, S., & Karimi, R. (2024). Missed nursing care in emergency departments: A cross-sectional descriptive study. *BMC Emergency Medicine*, *24*(1), 22. https://doi.org/10.1186/s12873-024-00936-9

Roos, J. M., & Bauldry, S. (2022). *Confirmatory factor analysis*. SAGE Publications, Inc. https://doi.org/10.4135/9781071938959

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*(2), 1-36. https://doi.org/10.18637/jss.v048.i02

Schubert, M., Glass, T. R., Clarke, S. P., Aiken, L. H., Schaffert-Witvliet, B., Sloane, D. M., & De Geest, S. (2008). Rationing of nursing care and its relationship to patient outcomes: The Swiss extension of the International Hospital Outcomes Study. *International Journal for Quality in Health Care*, *20*(4), 227-237. https://doi.org/10.1093/intqhc/mzn017

Senek, M., Robertson, S., Ryan, T., King, R., Wood, E., & Tod, A. (2020). The association between care left undone and temporary nursing staff ratios in acute settings: A cross-sectional survey of registered nurses. *BMC Health Services Research*, *20*(1), 637. https://doi.org/10.1186/s12913-020-05493-y

SFS 2017:30. *Hälso- och sjukvårdslag*. https://www.riksdagen.se/sv/dokument-och-lagar/dokument/svensk-forfattningssamling/halso-och sjukvardslag-201730_sfs-2017-30/

SFS 2017:80. *Hälso- och sjukvårdsförordning*. https://www.riksdagen.se/sv/dokument-och lagar/dokument/svensk-forfattningssamling/halso-och sjukvardsforordning-201780_sfs-2017-80/

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton, Mifflin and Company.

Shunmuga Sundaram, C., Campbell, R., Ju, A., King, M. T., & Rutherford, C. (2022). Patient and healthcare provider perceptions on using patient-reported experience measures (PREMs) in routine clinical care: A systematic review of qualitative studies. *Journal of Patient-Reported Outcomes*, *6*(1), 122. https://doi.org/10.1186/s41687-022-00524-0

Sjöström, B., & Dahlgren, L. O. (2002). Applying phenomenography in nursing research. *Journal of Advanced Nursing*, *40*(3), 339-345. https://doi.org/10.1046/j.1365-2648.2002.02375.x

Skov, N. F., Tygesen, G. B., Considine, J., Göransson, K., Leth, S. V., Gravesen, R. M., & Lisby, M. (2026). Emergency nursing in the emergency department: A scoping review of nursing tasks. *Journal of Emergency Nursing*. https://doi.org/10.1016/j.jen.2026.07.011

Sochalski, J. (2004). Is more better? The relationship between nurse staffing and the quality of nursing care in hospitals. *Medical Care, 42*(2 Suppl.), II67-II73. https://doi.org/10.1097/01.mlr.0000109127.76128.aa

Streiner, D. L., Norman, G. R., & Cairney, J. (2024). *Health measurement scales: A practical guide to their development and use* (6th ed.). Oxford University Press.

Svensk sjuksköterskeförening. (2024). *Kompetensbeskrivning för legitimerad sjuksköterska*.

Swedish Agency for Health and Care Services Analysis. (2018). *En akut bild av Sverige - Kartläggning av akutsjukvårdens organisation och arbetsfördelning*. https://www.vardanalys.se/wp-content/uploads/2018/12/Rapport-2018-13-En-akut-bild-av-Sverige.pdf

Sweet, V., & Foley, A. (2020). *Sheehy's emergency nursing: Principles and practice* (7th ed.). Elsevier.

Tegelberg, A., Muntlin, Å., Juhlin, C., & Jangland, E. (2020). Engagement under difficult conditions: Caring for patients with acute abdominal pain across the acute-care chain: A qualitative study. *International Emergency Nursing*, *52*, 100910. https://doi.org/10.1016/j.ienj.2020.100910

Tekwani, K. L., Kerem, Y., Mistry, C. D., Sayger, B. M., & Kulstad, E. B. (2013). Emergency department crowding is associated with reduced satisfaction scores in patients discharged from the emergency department. *Western Journal of Emergency Medicine*, *14*(1), 11-15. https://doi.org/10.5811/westjem.2011.11.11456

The Health and Social Care Inspectorate. (2018). *I väntan på vårdplats: Om patientsäkerhet på akutmottagningar (Nationell tillsyn inom hälso- och sjukvård).* https://www.ivo.se/globalassets/dokument/publikationer/rapporter/rapporter-2018/nationell-tillsyn-av-akutmottagningar.pdf

The National Board of Health and Welfare. (2003). *National Board of Health and Welfare term bank* . Retrieved from https://termbank.socialstyrelsen.se/?TermId=214&SrcLang=sv

The National Board of Health and Welfare. (2021). *Socialstyrelsens kompetensmål för undersköterskor*. https://www.socialstyrelsen.se/globalassets/sharepoint dokument/artikelkatalog/ovrigt/2021-2-7219.pdf

The National Board of Health and Welfare. (2025). *Statistikdatabas för akutmottagningar, väntetider och besök*. https://sdb.socialstyrelsen.se/if_avt_manad/

Tunlind, A., Granström, J., & Engström, Å. (2015). Nursing care in a high-technological environment: Experiences of critical care nurses. *Intensive and Critical Care Nursing*, *31*(2), 116-123. https://doi.org/10.1016/j.iccn.2014.07.005

van der Linden, M. C., Meester, B. E., & van der Linden, N. (2016). Emergency department crowding affects triage processes. *International Emergency Nursing*, *29*, 27-31. https://doi.org/10.1016/j.ienj.2016.02.003

Viana Santana, L. T., Pollo, C. F., de Morais, J. F., Deplacido de Leo, A. F., de Freitas, J. P., de Oliveira, C., & Meneguin, S. (2025). Association between the practice environment and missed nursing care in the emergency room. *International Emergency Nursing*, *80*, 101609. https://doi.org/10.1016/j.ienj.2025.101609

Vincelette, C., Thivierge-Southidara, M., & Rochefort, C. M. (2019). Conceptual and methodological challenges of studies examining the determinants and outcomes of omitted nursing care: A narrative review of the literature. *International Journal of Nursing Studies*, *100*, 103403. https://doi.org/10.1016/j.ijnurstu.2019.103403

von Vogelsang, A.-C., Falk-Brynhildsen, K., Erestam, S., Leo Swenne, C., & Torbjörnsson, E. (2025). Translation, cultural adaptation, and psychometric properties of the MISSCARE survey OR - Swedish version. *BMC Nursing*, *24*(1), 855. https://doi.org/10.1186/s12912-025-03548-1

Walsh, A., Bodaghkhani, E., Etchegary, H., Alcock, L., Patey, C., Senior, D., & Asghari, S. (2022). Patient-centered care in the emergency department: A systematic review and meta-ethnographic synthesis. *International Journal of Emergency Medicine*, *15*(1), 36. https://doi.org/10.1186/s12245-022-00438-0

Walters, S. J., Campbell, M. J., & Machin, D. (2021). *Medical statistics: A textbook for the health sciences* (5th ed.). Wiley-Blackwell.

Wang, M., Zhang, L., Zhang, L., Wu, C., Xu, H., Liu, F., & Lang, H. (2026). Development of an emergency department missed nursing care scale using the Delphi method. *International Emergency Nursing*, *87*, 101864. https://doi.org/10.1016/j.ienj.2026.101864

Weaver, K., & Olson, J. K. (2006). Understanding paradigms used for nursing research. *Journal of Advanced Nursing*, *53*(4), 459-469. https://doi.org/10.1111/j.1365-2648.2006.03740.x

Welch, S. J. (2010). Twenty years of patient satisfaction research applied to the emergency department: A qualitative review. *American Journal of Medical Quality*, *25*(1), 64-72. https://doi.org/10.1177/1062860609352536

White, J., Gunn, M., Chiarella, M., Catton, H., & Stewart, D. (2025). *Renewing the definitions of 'nursing' and 'a nurse': Final project report, June 2025*. International Council of Nurses. https://www.icn.ch/sites/default/files/2025-06/ICN_Definition-Nursing_Report_EN_Web_0.pdf

Wilde, B., Larsson, G., Larsson, M., & Starrin, B. (1994). Quality of care. Development of a patient-centred questionnaire based on a grounded theory model. *Scandinavian Journal of Caring Sciences*, *8*(1), 39-48. https://doi.org/10.1111/j.1471-6712.1994.tb00223.x

Wilde, B., Starrin, B., Larsson, G., & Larsson, M. (1993). Quality of care from a patient perspective. *Scandinavian Journal of Caring Sciences*, *7*(2), 113-120. https://doi.org/10.1111/j.1471-6712.1993.tb00180.x

Wilde-Larsson, B., Larsson, G., Larsson, M., & Starrin, B. (2001). *KUPP-boken: Kvalitet Ur Patientens Perspektiv Patienten värderar vården: En vägledning till frågeformuläret KUPP (1995,1996,1998)(*4th ed.). Vårdförbundet. http://urn.kb.se/resolve?urn=urn:nbn:se:kau:diva-20871

Willis, E., Zelenikova, R., Bail, K., & Papastavrou, E. (2021). The globalization of missed nursing care terminology. *International Journal of Nursing Practice*, *27*(1), e12859. https://doi.org/10.1111/ijn.12859

Wolf, L., Benjamin, E., Clark, P., & Callihan, M. (2026). Perceived relationships between emergency department staffing patterns and missed care, missed decompensation, and delays in care. *Journal of Emergency Nursing*, *52*(1), 143-157. https://doi.org/10.1016/j.jen.2025.08.002

Wolf, L., Delao, A., Simon, C., & Jodelka, F. M. (2025). Establishing triage competencies and verification processes: A survey study. *Journal of Emergency Nursing*, *51*(1), 59-78. https://doi.org/10.1016/j.jen.2024.09.005

Wolf, L. A., Perhats, C., Delao, A. M., Clark, P. R., & Moon, M. D. (2017). On the threshold of safety: A qualitative exploration of nurses' perceptions of factors involved in safe staffing levels in emergency departments. *Journal of Emergency Nursing*, *43*(2), 150-157. https://doi.org/10.1016/j.jen.2016.09.003

World Health Organization. (2006). *Quality of care: A process for making strategic choices in health systems*. https://iris.who.int/handle/10665/43470

World Health Organization. (2018a). *Delivering quality health services: A global imperative for universal health coverage*.

World Health Organization. (2018b). *Emergency care system framework*. https://www.who.int/publications/i/item/who-emergency-care-system-framework

World Medical Association. (2025). World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human participants. *JAMA*, *333*(1), 71-74. https://doi.org/10.1001/jama.2024.21972

Wretborn, J., Henricson, J., Ekelund, U., & Wilhelms, D. B. (2020). Prevalence of crowding, boarding and staffing levels in Swedish emergency departments - A national cross sectional study. *BMC Emergency Medicine*, *20*(1), 50. https://doi.org/10.1186/s12873-020-00342-x

Quality of care in the emergency department

Quality of care is a key concern in emergency departments. There is a need for research exploring this issue at the intersection of emergency nursing care and the unique conditions of the emergency department setting, taking missed nursing care into account. This thesis examined and explored quality of care in emergency departments from the perspectives of healthcare staff and patients. Knowledge about quality of care in emergency departments was developed across four papers, where each paper informed the design of the subsequent paper. Missed nursing care was common and linked to both patient and organisational characteristics, with fundamental care needs being omitted more often than medical/technical care. Crowding, in particular, was associated with reduced quality of care as perceived by patients.

ISBN 978-91-7867-759-7 (print)

ISBN 978-91-7867-760-3 (pdf)

ISSN 1403-8099

DOCTORAL THESIS | Karlstad University Studies | 2026:51