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Forsell, Lena

2023

Document Version:

Publisher's PDF, also known as Version of record

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Citation for published version (APA):

Forsell, L. (2023). *Nurses' roles, responsibilities and assessment in the Swedish Ambulance Service*. [Licentiate Thesis, Department of Health Sciences]. Lund University, Faculty of Medicine.

Total number of authors:

1

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Nurses' roles, responsibilities and assessments in the Swedish Ambulance Service

Nurses' roles, responsibilities and assessments in the Swedish Ambulance Service

Lena Forsell



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LICENTIAT DISSERTATION

Licentiat dissertation at the Faculty of Medicine at Lund University to be publicly
defended on 13 September 2023 at 13.00 in E16003, Forum Medicum,
Sölvegatan 19, Lund

Faculty opponent
Sofia Almerud Österberg
Linnéuniversitetet, Växjö

Organization: LUND UNIVERSITY
Document name: Licentiat dissertation
Author: Lena Forsell

Date of issue: 13 September 2023 at 1 pm.
Sponsoring organization:

Title and subtitle: Nurses' roles, responsibilities and assessments in the Swedish Ambulance Service

Abstract

Aim: The overarching aim of the research project was to understand specialist ambulance nurses' perceptions of their professional role and responsibilities and illuminate possible consequences in terms of referral patterns for patients assessed as non-urgent in the context of the Swedish Ambulance Service.

Methods : The data collection methods were both inductive and deductive. The study group consisted of I) 19 specialist ambulance nurses and II) 1,048 patients triaged as non-urgent. In Study I, interviews were analysed using a phenomenographic method with the aim of identifying similarities and differences in the interviewees' perceptions of nursing in ambulance care. In Study II, descriptive and analytical statistics were employed. IBM SPSS statistics 25 was utilized to conduct the statistical analysis. Statistical significance was considered to be a p-value of <0.05.

Results: In Study I seven categories were identified, which highlighting the variations in how specialist ambulance nurses' perceive, understand and conceptualise nursing in ambulance care. Four categories illustrate how the specialist ambulance nurses perceived nursing and how this influenced their perception of their professional role and responsibilities. Three categories described perceptions of what they perceived as a barrier to nursing in ambulance care. The relationship between these seven perceptions is presented in an outcome space. In Study II the main result showed that more women than men were non-conveyed. Non-conveyance mainly occurs out-of-hours and more than half (53%) of the non-conveyed patients sought care again within 72h.

Conclusions: There are a variety of perceptions of ambulance nursing within the Swedish Ambulance Service. Four qualitatively different professional specialist ambulance nurse approaches exist in ambulance care, presumably affecting the assessment and judgment of the patients' condition. The assessment of non-urgent patients will be affected by the specialist ambulance nurses' view of nursing. It is essential to identify the few patients who have a time-critical condition among those triaged as non-urgent. The results indicate that the specialist ambulance nurse's knowledge of what nursing is and what it means to the patient is somewhat deficient.

Key words: ambulance service, non-conveyance, non-urgent, nursing, nursing assessment, pre-hospital care, specialist ambulance nurse

Classification system and/or index terms (if any)

Language: English

Recipient's notes

Price

Supplementary bibliographical information

ISSN and key title:


ISBN: 978-91-8021-452-0

Number of pages: 68

Security classification

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Paper 2 © International Emergency Nursing, Elsevier

Faculty of Medicine
Department of Health Sciences

ISBN 978-91-8021-452-0

Printed in Sweden by Media-Tryck, Lund University
Lund 2023



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*“We all have a story to tell
Whether we whisper or yell”*

Kelly. T. & Taylor. R. (2010). Happily Ever After © Sony

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Abstract

Aim

The overarching aim of the research project was to understand specialist ambulance nurses' perceptions of their professional role and responsibilities and illuminate possible consequences in terms of referral patterns for patients assessed as non-urgent in the context of the Swedish Ambulance Service.

Methods

The data collection methods were both inductive and deductive. The study group consisted of I) 19 specialist ambulance nurses and II) 1,048 patients triaged as non-urgent. In Study I, interviews were analysed using a phenomenographic method with the aim of identifying similarities and differences in the interviewees' perceptions of nursing in ambulance care. In Study II, descriptive and analytical statistics were employed. IBM SPSS statistics 25 was utilized to conduct the statistical analysis. Statistical significance was considered to be a p-value of <0.05.

Results

In Study I seven categories were identified, which highlighting the variations in how specialist ambulance nurses' perceive, understand and conceptualise nursing in ambulance care. Four categories illustrate how the specialist ambulance nurses perceived nursing and how this influenced their perception of their professional role and responsibilities. Three categories described perceptions of what they perceived as a barrier to nursing in ambulance care. The relationship between these seven perceptions is presented in an outcome space.

In Study II the main result showed that more women than men were non-conveyed. Non-conveyance mainly occurs out-of-hours and more than half (53%) of the non-conveyed patients sought care again within 72h.

Conclusions

There are a variety of perceptions of ambulance nursing within the Swedish Ambulance Service. Four qualitatively different professional specialist ambulance nurse approaches exist in ambulance care, presumably affecting the assessment and judgment of the patients' condition. The assessment of non-urgent patients will be affected by the specialist ambulance nurses' view of nursing. It is essential to identify the few patients who have a time-critical condition among those triaged as non-urgent. The results indicate that the specialist ambulance nurse's knowledge of what nursing is and what it means to the patient is somewhat deficient.

Populärvetenskaplig sammanfattning

Under de senaste åren har det skett en ökning av antalet samtal till det svenska nödnumret (112), angående personer i behov av ambulanssjukvård. I Sverige beräknas ambulansen utföra cirka 1 miljon uppdrag per år.

I svensk ambulanssjukvård är det inte ett krav men önskvärt, att en av de två personerna i ambulanssteamet ska ha en specialistutbildning med inriktning ambulanssjukvård. Den specialistutbildade ambulanssjuksköterskan ansvarar för att beslut tas om hur patienter ska bedömas, behandlas och triageras samt har ansvar för att välja adekvat vårdnivå för patienten. Genom att använda sin erfarenhet och kunskap kan ambulanssjuksköterskan snabbt utvärdera en patients hälsotillstånd och fatta beslut om lämplig vård. Oavsett tid, plats eller sammanhang, är det ambulanssjuksköterskans uppgift att säkerställa att patientsäkra bedömningar görs.

Ambulanssjukvårdens uppdrag har förändrats under de senaste åren och idag är ambulanserna utrustade med avancerad teknik och kan göra avancerade bedömningar direkt hos patienten. Men samtidigt har patientpopulationen förändrats och allt fler äldre bor kvar i sina hem. Detta kan göra bedömningarna mer komplexa eftersom många av dessa patienter lider av flera sjukdomar samtidigt. Det har också blivit svårare för patienter att veta vart de ska vända sig med sina symtom, vilket kan leda till att fler patienter triageras som "icke-akuta" och cirka 12–20 % av patienterna lämnas hemma efter bedömning.

Licentiatavhandlingen består av två delstudier med det övergripande syftet att förstå specialistutbildade ambulanssjuksköterskors uppfattning om sin yrkesroll och om sitt ansvar för omvårdnad i ambulanssjukvård samt att belysa möjliga konsekvenser i bedömningen av de patienter som bedöms som icke-akuta.

I den första delstudien intervjuades 19 specialistutbildade ambulanssjuksköterskor om deras uppfattningar om omvårdnad i ambulanssjukvård baserat på sina erfarenheter. I resultatet identifierades sju kategorier, vilka belyser de olika variationerna i hur ambulanssjuksköterskorna uppfattar, förstår och kontextualiserar omvårdnad i ambulanssjukvård. Fyra kategorier illustrerar hur ambulanssjuksköterskorna uppfattade omvårdnad samt uppfattningar om yrkesroll och ansvar. Tre kategorier beskriver uppfattningar om vad som uppfattas som hinder för omvårdnad inom ambulanssjukvården.

I den andra delstudien samlades data in för att beskriva de patienter som triagerades som icke-akuta, d.v.s. prioriterades som gula eller gröna enligt RETTS©. En jämförelse gjordes mellan gruppen med patienter som medtogs till akutmottagning alternativ

primärvård med de patienter som lämnades hemma. Syftet var också att följa upp de patienter som lämnades hemma för att undersöka om de i sin tur sökte vård igen inom de nästkommande 72 timmarna.

De viktigaste resultaten i studie II var:

- Fler kvinnor än män lämnas hemma
- Att lämnas hemma sker oftast vid uppdrag utförda på kväll respektive nattetid eller på helgen.
- Mer än hälften av patienterna som lämnas hemma söker vård igen inom 72 timmar.

Nästan en tredjedel av patienterna lämnades hemma. Patienterna, som transporterades med ambulans till akutmottagningen, var äldre än gruppen som lämnades hemma.

Sammanfattningsvis visar denna avhandling att det finns en stor variation av uppfattningar om omvårdnad i ambulanssjukvård som troligen påverkar bedömningen av patienternas tillstånd.

Dessa fynd väcker frågor om hur den specialistutbildade ambulanssjuksköterskans roll och ansvar kan förstås och diskuteras i svensk ambulanssjukvård. Resultaten indikerar att ambulanssjuksköterskans kunskap om vad omvårdnad innebär och vad vårdrelationen har för betydelse för patienten är något bristfällig. Möjligen kan ett omvårdnadsteoretiskt ramverk som omvårdnadsprocessen användas för att öka kunskapen om ambulanssjuksköterskans roll för omvårdnaden av patienter i ambulanssjukvård.

Avhandlingens resultat kan ha betydelse för den framtida utvecklingen av kursplaner för utbildningen till specialistsjuksköterska med inriktning mot ambulanssjukvård. En förståelse för hur ambulanssjuksköterskan förstår sin roll och sitt ansvar är en förutsättning för att korrekt implementera omvårdnadsprocessen både i kursplanen och i klinisk praktik.

För fortsatta studier är det av betydelse att få kunskap om patientens perspektiv särskilt för de patienter som åter söker vård inom 72 timmar. Dessutom är det viktigt att undersöka hur den specialistutbildade ambulanssjuksköterskans bedömningsprocess manifesteras i mötet med patienter som inte är i akut behov av vård.

List of Papers

- I Forsell, L., Forsberg, A., Kisch, A. & Rantala, A. (2020). Specialist Ambulance Nurses' Perceptions of Nursing: A Phenomenographic Study. *International Journal of Environmental Research and Public Health*, 17(14), 5018.
- II Forsell, L., Forsberg, A., Kisch, A. & Rantala, A. (2020). Inequalities and short-term outcome of patients assessed as non-urgent in a Swedish Ambulance Service setting. *International Emergency Nursing*; 57, 101018

Abbreviations

A&E	Accident and Emergency Department
AS	Ambulance Service
ESS	Emergency Symptoms and Signs
RETTSC	Rapid Emergency Triage and Treatment System
SAN	Specialist Ambulance Nurse
VS	Vital Signs

Preface

I remember one of the many encounters I have had with patients during my time as a specialist ambulance nurse in the ambulance service. The patient was a man presenting with back pain. When we got the patient to the ambulance and he was lying on the stretcher he asked me:

'Lena, tell me how to be a good patient. I am looking for help at the primary health care centre, but there are no appointments. I was referred to the accident and emergency department and when I got there, I was too healthy and referred to the primary health care centre. It's like a catch-22 situation and now I'm lying here in your ambulance. What should I do to do the right thing? How should I teach my children to be good care seekers?'

This encounter made me start to reflect on how difficult it can be for patients to do the right thing. It also made me reflect on the fact that despite having the same education, knowledge and experience we specialist ambulance nurses often make very different assessments and judgments.

When I started work as a nurse in the ambulance service, I had many years of experience of working as a registered nurse both in municipal health care and in the Accident & Emergency department. The patients I encountered in the ambulance service mostly suffered from the same diseases and injuries as the patients I had met before.

I often experienced a dilemma when faced with choosing the appropriate level of care for the patient. Sometimes the patient was taken by ambulance to the Accident & Emergency department even though my gut feeling said that she/he would receive better care elsewhere, while sometimes patients were discharged at the scene even though the Accident & Emergency department might have been the best place for care.

This made me think about what happened in the long term to the patients who were left at home. Sometimes they were given self-care advice, e.g., on how to relieve their pain or were simply told to wait. At other times the patients were encouraged to seek care at the primary health care centre or to use their own transportation to the Accident & Emergency department. I observed that there was not always a consensus in how I and my colleagues with the same specialist training in ambulance nursing reasoned when making decisions about the patient's care, which made me curious about how

ambulance nurses perceive their professional role and responsibility in nursing. Another question raised was whether patients who were left at home sought care again. These are two of the questions that I wished to answer in this licentiate thesis.

Introduction

In recent years, there has been an increase in the number of calls to the Swedish national emergency telephone number regarding people in need of the ambulance service (AS). In Sweden, the AS is estimated to respond to around 1 million calls per year (SOS Alarm, 2022). When the ambulance clinicians arrive at the scene, their initial task is to quickly assess the patient, determine the level of urgency (triage level), assess possible treatment options, manage the scene and make decisions about patient transport (Reay et al., 2018).

In all Swedish regions, it is desirable, but not mandatory, that one of the ambulance clinicians in the team is a specialist ambulance nurse (SAN) (Lederman et al., 2018). The SAN makes decisions about how patients should be assessed, judged, treated, triaged, referred and, when applicable, conveyed to the Accident & Emergency department (A&E) or referred to another level of care (i.e., non-conveyed). Decision-making by the SAN is a multifaceted process, where experience and knowledge are used to interpret information gathered from the patient and from clues in the patient's surroundings (Reay et al., 2018). Decision making involves considering patient-related factors based on the patient's physical and psychological status as well as age. Decision making also means taking account of external factors in the assessment, such as the environment around the patient, for example any risks. Time of day, weather conditions or the distance to the A&E are also important factors to consider in the assessment. Other aspects that can affect the decision-making process are the communication with the patient, the patient's significant others, one's own team or the other people involved (Gunnarsson & Warrén Stomberg, 2009).

In recent years, the mission of the AS has changed due to the introduction of more advanced equipment, resulting in more specialised assessments and interventions at the scene. The patient population has also shifted towards a gradually increasing proportion of older people who are still living in their own homes. Today, assessment is more complex and it has become more challenging for patients to know where to turn with their symptoms (Höglund, 2022). In the patient – SAN encounters, about 50% of the patients are assessed as non-urgent (Ek et al., 2013) and previous studies in the Swedish context reported that about 12–20% of the patients are non-conveyed after assessment

(Höglund et al., 2020; Magnusson et al., 2020). Several studies have been published in recent years highlighting various aspects of non-conveyance in the AS, i.e., assignments where after assessment the patient is not transported in the ambulance to further care (Ebben et al., 2017; Barrientos & Holmberg, 2018; Höglund et al., 2019; Lederman et al., 2019; van Doorn et al., 2021; Heinonen et al., 2022; Larsson et al., 2022). While some patients are safely non-conveyed and discharged at the scene by the SAN, others are conveyed to the A&E for non-urgent conditions, potentially resulting in overcrowding (Durant & Fahimi, 2012; Hjalte, Suserud, Herlitz & Karlberg, 2007).

Various protocols and guidelines, not always evidence-based, have been introduced in the AS to support SANs' decision-making on the level of care for patients (Lederman, Svensson & Rantala, 2018). In healthcare as well as within the AS the SAN has responsibility for nursing, which means four fundamental tasks: promote health, prevent disease, restore health and alleviate suffering (International Council of Nurses [ICN], 2021). The SAN also has overall responsibility for planning and carrying out the nursing process in the AS (Riksföreningen för ambulanssjuksköterskor [RAS], 2022). However, the perception of nursing as a foundation for the SANs' assessment has not been defined and articulated. There is a lack of knowledge about perceptions of nursing in ambulance care among SANs. This knowledge could be used to develop nursing guidelines for the AS.

Perspectives and viewpoints

Ontological assumptions and theoretical framework

In this thesis it is assumed that nursing in the AS cannot take place without nursing actions. The nurse's actions towards the patient should be guided by a desire to do good (Finfgeld-Connett, 2008).

In order to describe nursing in theoretical terms, a metaparadigm was developed in the early 1980s containing four concepts: person, environment, health and nursing (Fawcett, 1984). These concepts are comprehensive and central to creating knowledge about the nursing profession (Eriksson & Bergbom, 2022). Care within the AS mainly involves the nursing profession and should therefore adhere to the nursing metaparadigm. In this dissertation, Ida Jean Orlando's (1961) interpretation of nursing constitutes part of my ontological point of departure.

The patient should be considered an individual who has a unique need for help and with an inherent ability to express and communicate her/his needs (Orlando, 1961). Orlando holds that the way a patient behaves and acts when expressing her/his needs is significant. Additionally, when patients are unable to communicate their need for assistance or fulfil their needs independently, they experience a stressful situation. Subsequently, when summoning an ambulance due to temporary lack of autonomy or self-care ability, the person becomes a patient in ambulance care (Holmberg et al., 2014).

Orlando (1961) describes nursing as an autonomous profession, whose distinct and most important function is to assess patients' immediate need for help in different ways, i.e., what happens initially in the caring encounter between the nurse and the patient. It is important for the SAN who works autonomously in the AS (Holmberg & Fagerberg, 2010) to assess patients' immediate need for help to have knowledge of the individual nursing process described by Orlando. Orlando's deliberative nursing process views the nurse and the patient as a dynamic whole and is based on three important parts: The patient's behaviour, the nurse's response to the patient's behaviour and the nurse's nursing action in response to the patient's needs.

The interaction of between these elements is fundamental to the nursing process (Orlando, 2010).

Responsibility for the patient is an integral part of the nursing profession. Nurses are expected to respond to and alleviate the patient's suffering (van der Cingel & Brouwer, 2021). When assuming a professional identity as a SAN, this can be defined as connecting with the roles, responsibilities, values and ethics unique to the specific profession (Goltz & Smith, 2014). Furthermore, developing a professional identity involves having a clear understanding of one's expected skills, knowledge and motivation (Matney et al., 2020). In addition to connecting with the aforementioned professional skills, knowledge and motivation, it is the perception of oneself that sets the stage for determining a professional identity (First et al., 2012).

The deliberative nursing process

Orlando emphasised the elements of the nursing process and the importance of the patient's participation (Orlando, 2010). By using Orlando's theory, the nurse avoids acting on unsubstantiated assumptions. The nursing process theory stresses the shared relationship between the patient and the nurse, noting that what the nurse and patient say and do during their interaction affects them both (Orlando, 1961). In Orlando's view, the function of the professional nurse is to discover and meet the patient's immediate need for help, i.e., as the SAN does when assessing the patient. The nurse's direct observation of the patient's behaviour forms the foundation for the nurse's perceptions, thoughts and feelings, which arise automatically in an instantaneous sequence. The nurse's reaction, which is triggered by the patient's behaviour, is interpreted by the nurse based on knowledge, previous experience, norms and culture and has automatic consequences in the form of which actions are taken (Orlando, 2010).

According to Orlando (1961), the observation of the patient is three-fold and should be understood as a perception that the nurse receives directly through her/his senses, i.e., what she/he sees, notices and feels, i.e., emotions as a reaction to these observations and thoughts. Non-verbal expressions in the patient can be read from, for example, motor anxiety and physiological manifestations. The patient's verbal expression includes everything she/he says but also, e.g., crying and moaning. Verbal and non-verbal expression can be observed simultaneously.

The final step, the interaction between patient and nurse, consists of all the actions performed by the nurse. They are limited to what she/he says or does with or for the benefit of the patient. There are basically of two types: (1) actions based on reflection

and knowledge, which clarify or meet the patient's immediate needs and (2) automatic activities based on considerations other than the patient's immediate needs (Orlando, 1961).

Context, place and space

This thesis has a specific context within the AS. The nursing environment is situated within the nurse – patient encounter (Orlando, 1961), regardless of space, place and context (Roxberg et al., 2020). Space and place are general concepts that are widely used in health and caring sciences and there is a tendency to take the context for granted (Roxberg et al., 2020). Space and place are often referred to as a geographical place, e.g., a hospital ward or an emergency room. For the SAN in the ambulance, the space and place for the interaction with the patient can in principle take place anywhere. Patients can be encountered in a range of uncontrolled environments (Wilson et al., 2015), e.g., in the patient's home but also in the public space, which may place special demands on the interaction between the SAN and the patient. The ambulance clinicians work without predefined care rooms with the exception of the care space in the ambulance. Regardless of the conditions, SANs are expected to perform complex assessments and nursing actions in an environment beyond their control (Garza et al., 2008). The prehospital setting is characterized as unpredictable, requiring each care situation to be organized in response to the prevailing conditions. (Garza et al., 2008; Wireklint Sundström & Dahlberg, 2011).

Epistemological assumptions

The acquisition of knowledge can be achieved by comprehending and elucidating a phenomenon of interest, which is the reason why both qualitative and quantitative methods are employed. Research is the process through which scientific knowledge is generated by exploring different aspects of reality that have yet to be understood. Such yet to be understood phenomena are SANs' perceptions of nursing in an ambulance setting, as well as the short-term outcomes of prehospital assessments.

To grasp the variations in the perceptions of nursing, an inductive phenomenographic method was deemed appropriate. The underlying epistemological belief is that individuals experience the world in different ways, but these variations can be articulated, shared and comprehended by others (Sjöström & Dahlgren, 2002).

In Study II concerning short-term outcomes based on prehospital assessments by a SAN, a deductive quantitative method was chosen and numerical data were collected to enable comparisons and facilitate statistically significant correlations. Patient data were also collected to describe the population of interest. While qualitative research answers questions such as ‘how a phenomenon is experienced’, quantitative research answers questions that can describe the phenomenon, for example, ‘what factors are related to the phenomenon?’ The overall aim of nursing research is to answer questions and solve problems relevant to nursing (Polit & Beck, 2021). Employing both qualitative and quantitative methodologies allows researchers to acquire both an explanation and comprehension of the phenomenon of interest.

Background

The Swedish Ambulance Service

Modern ambulance care is a high-tech form of care with opportunities to perform medical interventions to treat seriously ill and injured people (Lindström et al, 2015; Khoshnood, 2020). The provision of care by the AS is governed on an overall level by the Health Care Act's vision of good quality care on equal terms for all citizens. The Swedish Patient Act (SFS 2014:821) emphasizes the importance of strengthening and clarifying the patient's position and promoting the patient's integrity, self-determination and participation. The law states that care must be easily accessible and that the patient should receive a health status assessment as soon as possible unless it is "clearly unnecessary".

The increasingly advanced care in the AS context means that patients should receive adequate care at an earlier stage with positive effects, such as enhanced health and well-being (Khoshnood, 2020). At the same time, it involves complex assessments and interventions (Wibring et al., 2020). Traditionally, the AS has been characterised by the "load and go" principle, i.e., quick on-site care and fast transport to hospital (Yarris et al., 2006). In line with advances in the ambulance clinicians' possibilities to assess, provide medical intervention and perform triage assessments and decisions, the obvious choice of destination is not necessarily conveying the patient to the A&E (Norberg et al., 2015; Wibring et al., 2020). According to Wibring et al. (2020), the Swedish AS has four choices of destination to which to refer, or alternatively convey, patients:

- Discharged at home with self-care advice (i.e., non-conveyed),
- Conveyed with the ambulance or referred by own means to the primary health care centre,
- Conveyed directly to a specialist examination or treatment (e.g., fast track for patients with suspected hip fractures),
- Conveyed with the ambulance or referred by own means to the A&E.

Ambulance clinicians

In accordance with national legislation, all ambulances in Sweden are crewed by a team of ambulance clinicians consisting of a pair of registered nurses or one registered nurse and one emergency medical technician (Lindström et al., 2015; Sjölin et al., 2015). There are two levels of registered nurses working in the Swedish AS, with different education and training; registered nurses (three-year Bachelor of Science degree) and registered nurses with specialist training (three-year Bachelor of Science degree followed by a Postgraduate Diploma in Specialist Nursing Pre-hospital Care and a Master of Science Degree majoring in Nursing/Caring Science (SAN)) (Lindström et al., 2015). Some regions in Sweden have raised the requirements to at least one SAN per ambulance. Normally, SANs work in pairs and act as a team with another registered nurse or an emergency medical technician, where the SAN (or registered nurse) is responsible for the quality of care (Wihlborg et al., 2017).

The specialist ambulance nurse

The learning process to become a SAN comprises both theoretical and practical knowledge (Axelsson et al., 2016). All nurses who attended the one-year master programme to become a SAN have three years of higher education at undergraduate level comprising 180 higher education credits with a bachelor's degree in nursing (Öhlén et al., 2011). The SAN education and training is at an advanced level and concludes with a Postgraduate Diploma in Specialist Nursing Pre-hospital Emergency Care and, at most universities, a Master of Science Degree (60 higher education credits in Nursing/Caring Science) (Sjölin et al., 2015). The universities educating registered nurses for ambulance care have a responsibility to guide the students through the transition from being a nurse with basic training to becoming a SAN (Nilsson & Lindström, 2017).

According to the Swedish Higher Education Act (SFS, 1993:100), to obtain a degree as an SAN the specific goals are to 'Demonstrate the ability to assess the somatic or mental status and immediate needs of sick or injured individuals and also demonstrate the ability to undertake the interventions required for patients in widely differing circumstances.' and to 'Demonstrate the ability to apply his or her specialist knowledge in connection with major accidents and catastrophes.'

The specific competency requirements for SANs developed by Sweden's National Association of Ambulance Nurses and the Swedish Nurses' Association (2022) aim to promote SANs' common professional and educational interests as well as ambulance care nursing. The competency description outlines how the SAN should work based

on six quality and safety competencies, first identified in the US by the Quality and Safety Education for Nurses project to deliver good and safe care. The six competencies that are applicable to all healthcare professions are: patient-centred care, teamwork and collaboration, evidence-based practice, quality improvement, safety and informatics (Cronenwett et al., 2007). It is also important for SANs to have knowledge of leadership and pedagogy (RAS, 2022). However, guidelines for SANs' competence, knowledge, adequate skills and other professional aspects are lacking at national level (Wihlborg, 2018).

The patient's path to the ambulance service

Commonly the first step on the patient's path to the AS involves a phone call to the emergency medical dispatch centre. The majority of the calls for emergency medical assistance made to the AS in Sweden were not initiated by patients themselves, as they accounted for only 7% of the total number of calls (Karlsten & Elowsson, 2004). Instead, healthcare staff (51.5%) and significant others (23.8%) were the most frequent callers who recognized the need for such assistance. Moreover, the caller may not always be present at the scene or may have had no prior encounter with the patient, which was the case in 6.9% of the calls (Karlsten & Elowsson, 2004). When individuals phone the emergency number in Sweden, the call is answered by emergency medical dispatchers or registered nurses at the emergency medical dispatch centre. These professionals assess the type of problem presented and determine whether it requires an AS assessment (Holmström et al., 2022). The dispatchers or the registered nurses at the emergency medical dispatch centre play a crucial role in identifying critical medical conditions and in giving important instructions to the caller if the patient is suffering. They also assess which of the described symptoms is the most critical and prioritise the calls with the help of a decision support system to determine the need for an AS assessment (Hedman, 2016).

The AS receives information about emergencies through a voice or text message to a pager. In this message emergency medical dispatchers inform about the situation, the assigned priority level and the address of the person in need (Hedman, 2016).

Assessments, judgements and triage in the Swedish Ambulance Service

For the SAN, the assignment starts before the meeting with the patient, when the emergency medical dispatch centre sends the brief information text about the assignment, the patient's status, address and priority level (Reay et al., 2018; Wireklint Sundström & Dahlberg, 2012). Upon receiving the information, ambulance clinicians initiate their clinical reasoning process, considering factors such as the most efficient route to the patient, necessary medical equipment for assessment and intervention, the surrounding environment and the patient's condition (Andersson et al., 2022).

The assessment within the AS focuses on patients' physical and medical status by employing the Advanced Medical Life Support concept (NAEMT, 2021), i.e., assessing airway, breathing, circulation, disability, exposure and intervening when necessary, observing vital signs and listening to the patient's narrative of her/his symptoms of illness or injury (Reay et al., 2018). As part of their duties, the SANs are responsible for determining whether or not a patient's condition is time critical and identifying the necessary medical and nursing interventions (Elmqvist et al., 2008; Wibring et al., 2020). To enable SANs to make accurate and safe assessments of a patient's condition, it is important that the appropriate medical equipment is available, that the environment is safe for the patient and without any distractions (Wireklint Sundström & Dahlberg, 2011). To make an appropriate assessment of the patient's perceived condition, the SAN uses various methods to collect data about the patient, such as patients' narrative and "head to toe" assessment (Blaber & Harris, 2021). The collected data are processed by the SAN with the help of the ambulance team's knowledge, experience and intuition. Following this, a clinical judgment is made regarding ongoing care and treatment (Andersson et al., 2022; Reay et al., 2018).

The SAN's patient assessments and treatment are guided by clinical protocols and guidelines. (Falchenberg et al., 2021). To help and support the SAN in the assessment and decision-making, colleagues and physicians can be available by phone as a complement to the guidelines. In addition to the clinical protocols and guidelines, the ambulance clinicians (in most regions of Sweden) also have a triage and prioritization instrument (RETTTS©) that, based on symptoms, can provide suggestions for further examinations to facilitate prioritization taking account of the patient's medical history and vital signs (Widgren & Jourak, 2011).

Sweden is divided into 21 regions. Each region is responsible for how the AS is organized in their own area, creating diversity in how ambulance care is structured and

operated throughout Sweden (Socialstyrelsen, 2023). There are, however, some common factors. Most regions issue the ambulance clinicians with treatment guidelines for how patients with various symptoms, diagnoses or conditions should be treated in the ambulance.

Rapid Emergency Triage and Treatment System

Most regions in Sweden employ the Swedish Rapid Emergency Triage Treatment Scale (RETTTS©) to assess patients' medical care needs in the AS (Widgren, 2012). The RETTTS© system is designed to assist users in assessing the medical risk of a patient seeking emergency care, regardless of where the patient is in the healthcare system. It is a process-based decision-making tool that aims to provide guidance for evaluating individual patient needs. The objective of using a triage scale is to ensure that each patient receives appropriate treatment at the right time and location, based on her/his individual needs (Kim & Oh, 2023; Voskens et al., 2018). The goal is also to improve the medical safety of assessment and reduce individual variations. The RETTTS© is not only used in the AS but also in the A&E for adults and children as well as psychiatric A&Es (Widgren, 2012). However, inconsistencies were discovered in the evaluated triage levels when emergency department nurses employed a triage scale during a reliability study, resulting in improper identification and differentiation of stable and unstable cases (Wireklint et al., 2018).

Triage in RETTTS© is performed in two steps based on a combination of algorithms, where the objective vital signs (VS), respiratory rate, saturation, heart rate, blood pressure, level of consciousness and body temperature are the first step of the assessment. The second step is the Emergency Symptoms and Signs (ESS) algorithm consisting of about 58 flowcharts (RETTTS©-adult, version 2016) of the most common symptom and sign presentations with annual updates.

In each ESS algorithm different symptoms and signs are described that provide guidance about the patient's priority level, expressed as a triage colour based on severity. The recommended ESS priority must be assessed together with the priority specified by the VS. The level of severity is based on the highest colour of the VS or ESS and becomes the final triage level.

In RETTTS©, there are five different priority levels, namely red, orange, yellow, green and blue. The red level is defined as life-threatening and the orange level as potentially life-threatening, both of which are time-sensitive, indicating the need for immediate emergency attention. Yellow and green levels are defined as being able to wait for medical care without medical risk, although yellow is considered to require greater

urgency than green. The blue level is not used in ambulance care in the area where the data for the present dissertation has been collected, but patients in this category are judged not to need emergency care and can be referred to another level of care without medical risk (Widgren, 2012).

The Patient

Persons who call for an ambulance can range from young children who are ill or injured to frail older adults with multiple health conditions. The symptoms presented can range from severe, life-threatening conditions to mild symptoms that can be managed through self-care at home. (Holmberg & Fagerberg, 2010; Larsson et al., 2017; Wireklint Sundström & Dahlberg, 2011)

The Non-Urgent Patient

The discussion about whether patients need urgent attention or if the AS is used effectively is nothing new and was already mentioned in the literature in the 1980s (Morris & Cross, 1980; Rademaker et al., 1987). There is no uniform definition of the non-urgent group of patients, nor of which patients have ambulance needs. Uscher-Pines et al. (2013) conducted a systematic literature review of the U.S. literature to identify factors associated with non-urgent A&E use by adults in the U.S. and found twenty-six articles that met the inclusion criteria. In their results they noted that no studies presented an exact definition of non-urgent visits. In the studies the patients were described as suffering from minor, non-urgent, non-serious, medically unnecessary, or low acuity problems (Uscher-Pines et al., 2013), or more harshly as ‘inappropriate users’ (Richards & Ferrall, 1999). A systematic review study (O’Cathain et al., 2020) identified six mechanisms that explain why patients made clinically unnecessary use of the AS and A&E:

- The necessity to minimize risk, such as the potential for increased anxiety caused by prior exposure to traumatic events.
- Need for speed, e.g., caused by need to function normally to attend to responsibilities.
- Need for low treatment-seeking burden, due to the complexity or stressfulness of daily life.
- Compliance when you have been advised to go to A&E by significant others or by advice from healthcare professionals.

- Consumer satisfaction: A&E was perceived to offer the desired tests and expertise in contrast to primary healthcare centres.
- Frustration: when patients attempted to schedule an appointment at a primary healthcare centre within a certain timeframe but were unsuccessful.

Other explanations could be a lack of access to, and confidence in, primary healthcare. The perceptions of urgency or anxiety create a need for reassurance from the AS and patient factors such as lack of transport also play a role (Coster et al., 2017).

Non-conveyance

Non-conveyance is described as a ‘call to the ambulance service that results in a decision not to transport the patient to a health-care facility’ (O’Cathain et al., 2018, p. 17). Non-conveyance as a phenomenon occurs in countries all over the world (Ebben et al., 2017). Non-conveyance means discharging patients in out-of-hospital settings, e.g., in the patient’s home or another place where the patient is at that moment (O’Cathain et al., 2018). Factors that influence decisions regarding non-conveyance are: the ambulance clinicians’ competence, experience and intuition, the patient’s medical needs and desires, the access to care at another level e.g., primary healthcare or the lack of a home support system for further care and support (Ebben et al., 2019). Non-conveyance can be divided into two categories: the patient-initiated refusal and the ambulance professionals’ decision (Cone et al., 1995; Heinonen et al., 2022). Often, non-conveyance is a combination of these two categories (Ebben et al., 2017).

An ageing population, lack of social support and difficulties accessing primary healthcare centres were found to be examples of factors associated with non-conveyance (Lowthian et al., 2011). The reason behind the introduction of non-conveyance is not entirely clear, one factor may be that the increasing demand for ambulance care has led to an increase in non-conveyance (Höglund et al., 2019). Another explanation may be that non-conveyance was introduced as a response to overcrowded A&Es (O’Cathain et al., 2018; Paulin et al., 2021).

However, there are risks associated with non-conveyance such as delayed care, poor health outcomes or even death if the ambulance clinicians fail to identify patients with time critical conditions (Coster et al., 2019; Tohira et al., 2016).

Region-specific guidelines for non-conveyance have been developed both in Sweden (Lederman et al., 2018) and internationally, e.g., in the Netherlands (Ebben et al., 2017). However, consensus and validated guidelines for non-conveying

patients are lacking both internationally and nationally (Ebben et al., 2017; Lederman et al., 2018).

In Sweden, each region has developed its own non-conveyance guidelines. These guidelines are most usually based on the RETTS© (Höglund, 2022). In some regions, ambulance crews may not have the option to non-convey patients, or they may need to contact a physician before doing so. The current non-conveyance guidelines in Sweden are based on expert opinions, vary across different regions and lack validation for their practical application (Norberg, 2015).

Ambulance clinicians' experiences of non-conveyance

Ambulance clinicians have expressed feelings of uncertainty concerning assessments of patients that are non-conveyed. There is a fear that an incorrect assessment may harm the patient (Lederman et al., 2019). However, it has been reported that the large amount of non-conveyance assessment helps reduce the sense of uncertainty (Barrientos & Holmberg, 2018). Deciding to non-convey patients involves a greater responsibility than conveying patients (Backman et al., 2019; Höglund et al., 2019; Lederman et al., 2019). For the ambulance clinicians, it is important to reach a consensus with the patient and her/his significant others about non-conveyance decisions, even though there is often an expectation on the part of significant others that the patient should be conveyed by the ambulance (Höglund et al., 2019; Lederman et al., 2019).

Among ambulance clinicians, assessment of patients gave rise to irritation and frustration when the patient was not in need of urgent care, i.e., what the ambulance clinicians felt they have been trained for (Barrientos & Holmberg, 2018). Perceptions of an educational paradox were also noted, suggesting that the training provided to future SANs focuses primarily on preparing them for acute situations during ambulance assignments, while offering little preparation for decision-making in non-conveyance scenarios (Lederman et al., 2019).

Patients' experiences of non-conveyance

Overall, patients and significant others are satisfied with the care provided by the AS despite being non-conveyed (Larsson et al., 2022). The following four conditions, namely thoroughness, competence, acting professionally and a calm demeanour on the part of the SAN (van Doorn et al., 2021) in addition to respectful communication are necessary for the creation of trust in the SAN and the non-conveyance decision. The SAN's attitude was also crucial for creating trust between the SAN, the patient and

her/his significant others (Larsson et al., 2022). The patient felt safe if the ACs had the opportunity to perform a detailed medical assessment and at the same time explain the significance of the various measurement values, which was also confirmed in a Swedish study regarding patients triaged to non-conveyance (Rantala et al., 2016). The ability of the SAN to create a safety net for the patient was mentioned as important for creating confidence, especially for significant others. This included giving advice on where the patient should turn instead or self-care instructions (van Doorn et al., 2021). However, when patients were non-conveyed they experienced feelings of guilt and shame (van Doorn et al., 2021). The same feelings also arose in patients when they were not involved in the decision-making process around non-conveyance (Rantala et al., 2016).

Patients who have been left at home expressed the need for follow-up from the AS. These patients have questions that relate both to the incident and the subsequent consequences. However, in some cases they just want to be able to show their gratitude for the assessment (van Doorn et al., 2021). Furthermore, patients who were left at home want to be taken seriously and listened to when describing their symptoms and reasons for summoning an ambulance (Rantala et al., 2016).

Rationale

Two fundamental parts of the SAN's everyday professional life are assessments and judgments that are made regardless of context, place and space. Clinical reflection, intuition and reasoning in addition to practical skills are abilities that are emphasized as particularly important for clinical assessments and judgements. In addition, the SAN's experience and level of knowledge are viewed as crucial. This thesis stems from the assumption that the SAN's perception of nursing in ambulance care as well as of her/his professional role and responsibilities affect how assessments are performed and judgements made regarding the patient's health situation and need of assistance.

A reasonable expectation is that the SAN should be able to help patients cope with short-term physiological and psychological changes related to their health condition and, if possible, regain their health. The point of departure is that it might be difficult to put the clinical preunderstanding aside and be open to each new situation and encounter. Furthermore, it is assumed that the ontological view of the person as a patient in non-urgent ambulance care might be shaped by the SAN's ethos as well as by the AS context with its protocols, guidelines and inherent culture. However, there is a lack of knowledge about perceptions of nursing among SANs in the AS and how this could possibly affect how nursing and medical care are provided. In addition, there is limited knowledge pertaining to the characteristics of patients assessed as non-urgent, as well as their referrals and outcomes such as renewed contact with emergency care. Thus, the rationale behind this study was to explore perceptions of nursing, referral patterns and consequences of assessments and judgments.

Aim

The overall objective of this thesis was to understand specialist ambulance nurses' perceptions of their professional role and responsibilities in nursing and illuminate possible consequences in terms of referral patterns for patients assessed as non-urgent in the context of the Swedish Ambulance Service.

Specific aims

- I. To explore specialist ambulance nurses' perceptions of nursing.
- II. To explore non-urgent patients who are conveyed or not conveyed to hospital and the short-term outcome of non-conveyance in a Swedish Ambulance Service setting.

Methods

Design

In this licentiate thesis two different methodological designs were chosen to gain a deeper insight into SANs' role, responsibilities and assessments. A qualitative design with a phenomenographic approach was chosen to explore SANs' perceptions of nursing (Study I). A descriptive, cross-sectional design was used to explore non-conveyance in an ambulance setting, which was part of a larger research project (Study II). In Table 1 an overview of the studies is presented.

Table 1. Overview of the studies.

Study	Design	Participants	Data collection	Data analysis
I	Qualitative, deductive	Specialist ambulance nurses	Individual interviews	Phenomenographic
II	Quantitative, cross-sectional	Patients assessed as non-urgent	Study protocol, administrative systems	Descriptive, Chi-square test, Student's t-test, ANOVA

Settings

Study I and Study II

Study I was conducted in one region in southern Sweden containing seven ambulance stations located in two ambulance districts comprising both rural and urban areas.

Study II was conducted in one ambulance district containing five ambulance stations, in the same region of southern Sweden as Study I where the catchment area contains

250,000 inhabitants distributed in both rural and urban environments. The area represents variation in terms of socio-economic conditions as well as age, sex and ethnic origin. During the study there were 45,121 ambulance assignments in the catchment area, of which 23,982 were deemed non urgent. Depending on the time of day and season there were 8–12 ambulances on call, with at least eight ambulances on call 24 hours a day, 365 days a year and 11 ambulances in the daytime, with an additional unit 24/7 from June to August. There is one emergency hospital in the area available 24 hours a day, 365 days a year. There is also a local hospital that was open during the daytime 7 days a week. The primary care centres in the area where the study took place were open from 8:00 a.m. to 5:00 p.m., Monday to Friday but one of them had different opening hours, namely 5:00 p.m. to 9:00 p.m. on Monday to Friday and between 10:00 a.m. and 9:00 p.m. on weekends.

Participants

Study I

The inclusion criteria for Study I were nurses with a postgraduate degree in Specialist Prehospital Emergency Care leading to the professional title of SAN and working as a SAN in the Swedish AS at the time of the study. A total of 19 SANs with an average work experience in the profession of 7.47 years (range 0.5–14) agreed to participate in Study I. The participants represented variation in terms of years of work experience, sex and age (see Table 2).

Table 2. Demographics of the participants in Study I.

Characteristics	Number of participants	%
Age		
<30	2	10.5
31-40	7	37
41-50	8	42
51-60	2	10.5
>61	-	
Sex		
Male	9	47
Female	10	53

Study II

All patients, 18 years or older, who were triaged as yellow or green in accordance with the RETTS© were eligible for Study II if they could understand and communicate in Swedish. The patients should be able to read and understand information about the study and provide informed consent. Exclusion criteria were patients transported between hospitals. Out of 23,982 eligible patients, 1,324 were consecutively invited to participate in the study. Finally, 1,048 patients were included.

Data collection

Individual and open-ended interviews (Study I)

A person responsible for internal education within the ambulance district approached the potential participants who met the inclusion criteria. Every participant was provided with verbal and written information about the study's purpose and the fact that participation was voluntary. They were also informed that they could withdraw from the study at any time without any negative consequences. Written informed consent was obtained before the interviews. Data were collected between September and October 2017. The individual interviews were performed by two master students under supervision. A semi structured interview guide with a limited number of pre-formulated open-ended questions was employed. All interviews were conducted in a secluded and quiet room at the participant's workplaces either before or after a shift and were audio-taped and transcribed verbatim. The actual interview started with the question: "When I say nursing, what comes to your mind?" followed by "Can you please tell me how you perceive nursing within the ambulance service?" Follow-up questions were posed to deepen and explore SANs' perceptions of nursing. The interviews lasted between 10 to 35 min with a mean time of 22 min.

Data collection (Study II)

Data were collected between May 2016 and May 2017 in two steps. In the first, a study protocol was constructed and vetted by researchers and experts with profound knowledge of the AS context. Before the data were recorded in the study protocol, the patient received information about the study. Informed consent was obtained verbally and recorded in the study protocol, in which the SAN documented information about the patient. Data collected for the study were the Swedish social security number, date

and time of assessment, biological sex, assessment priority in accordance with the RETTS© and the level of care to which the patient was referred. When the patient was not conveyed, the ambulance clinicians had to indicate in the study protocol whether the patient did not need care, did not want care or if minor care interventions or self-care advice were provided. In the second step, patients were followed up in an administrative system with information about their primary healthcare visits as well as hospital care, i.e., the A&E. This step was carried out by a person who worked in the regional administration and was appointed to release the data. Thanks to this last step, information was obtained about the patients who were non-conveyed and sought care again within 72 hours, as well as whether they were admitted to hospital. Information was only collected for those patients who agreed to participate in the study.

Data analysis

Phenomenographic analysis (Study I)

Because the research question aimed to explore SANs' perceptions of nursing in ambulance care, a phenomenographic method was chosen to analyse the data. Phenomenography focuses on describing people's ways of understanding phenomena in their surroundings (Marton & Booth, 1997). Phenomenography does not aim to try to understand the phenomenon, but to understand the different ways in which a group of people understand and perceive it. Central phenomenographic conceptions are “what” and “how”. The first order perspective implies an explanation of how something “really is” (what). As the second-order perspective is essential in phenomenography, it was adopted in this study. Phenomenography is concerned with how something appears to an individual, not how it really is (Marton & Booth, 1997). The second-order perspective presents how people talk about the “what” (Sjöström & Dahlgren, 2002). The phenomenographic method has also been shown to be useful in nursing research, which often aims to explore individuals' or a group of people's perceptions of the experience of a phenomenon, as in the present study where the aim was to explore SANs' perceptions of nursing (Sjöström & Dahlgren, 2002).

The interviews generated 97 pages of text, which was transcribed verbatim. The data analysis followed the seven steps presented by Dahlgren and Fallsberg (1991): (1) *Familiarization*, the interviews were read several times, (2) *Condensation*, the most central parts of the participant's response were identified, (3) *Comparison*, similarities and differences in the data were searched for, (4) *Grouping*, responses which appeared to be similar were grouped together into categories, (5) *Articulating*, the boundary

between different perceptions was drawn, (6) *Labelling*, the categories were labelled to reflect the meaning of the data, (7) *Contrasting*, the categories were compared regarding similarities and differences. Finally, the outcome space was constructed, which illustrates the categories of a phenomenographic analysis, i.e., people's different ways of thinking about their experiences (Sjöstrom & Dahlgren, 2002).

There is a risk that pre-understanding contributes to researchers becoming blind to the emergence of new aspects (Dahlberg, 2008). During the research process, I actively tried to remain aware of my pre-understanding so that it would not affect the data analysis. In phenomenographic research, however, it is important to clarify the researcher's position as the researcher should be seen as part of the context that is being researched.

Descriptive and analytic statistics (Study II)

Descriptive statistics were applied for demographics, referral, triage, emergency signs and symptoms, re-visits to healthcare within 72 hours and hospital admissions. To assess differences in proportions between patients who were conveyed and non-conveyed the Chi square test was employed. The student's t-test was used to assess differences between two unrelated groups of continuous variables. The ANOVA test was applied to measure differences between more than two unrelated groups. IBM SPSS statistics 25 was utilized to conduct the statistical analysis. Statistical significance was considered at a p-value of <0.05.

Ethical considerations

The dissertation and the two studies on which it is based have been guided by the fundamental ethical principles: the principle of autonomy, goodness, not to harm and justice (Beauchamp & Childress, 2013) as well as the ethical principles for research outlined in the Declaration of Helsinki (World Medical Association, 2013). The participants in both studies were asked for and gave their written consent before participating and were informed that they could cancel their participation in the study at any time. All participants received both written and verbal information about the study objective.

As Study I did not entail any interventions, processing of personal data, or handling of sensitive information relating to vulnerable individuals or patients, it did not necessitate

ethical approval under the Swedish Law governing the Ethical Review of Research Involving Humans (SFS 2003:460).

For Study II, which involved personal patient data, we applied for and received permission from the Regional Ethics Board in Lund, Sweden (No. 2016/70). We also received permission to have the data released from the administrative system from the county council's mandatory ethics board (Samråd KVB, Region Skåne). The data were provided by an intermediary appointed by the data holder. This guaranteed confidentiality in accordance with the Swedish personal data act (1998:204). The study protocol is stored in a locked and fireproof cabinet. Data collected for the project are saved on an external hard drive separately from the code lists.

Results

A summary of the result of each study is presented separately. Complete results are presented in each paper (I & II).

Study I

The study explored SANs' perceptions of nursing. In total, seven categories were identified, illuminating the different variations in how the SANs perceive, understand and conceptualize the phenomenon of nursing in the AS. Four of the categories illustrated how SANs perceived nursing and how this affected their perception of their professional role and responsibilities. Three categories described perceptions of barriers to nursing in ambulance care. The relation between these seven perceptions is presented in an outcome space (Figure 1).

The specialist ambulance nurses' perceptions of nursing

Nursing in the AS meant establishing a caring relationship as a foundation for care

In this category, nursing involved focusing on the patient and establishing a relationship, including caring for patients who were unable to care for themselves. The SANs maintained a holistic approach in their perception of nursing, which encompassed all aspects of their interactions with the patient. The assessment of the patient was not only based on observable signs and symptoms, as her/his environment and daily living conditions were also taken into account. Nursing in the AS was perceived as a phenomenon that differed from nursing in intrahospital environments. The caring relationship was viewed as the foundation of nursing.

Nursing in the AS meant delivering professional care based on experience and scientific evidence

Another perception that emerged was that the SANs perceived that nursing was based on education and nursing science but also on the personal character of the SAN.

The SANs also had a perception of being an expert on nursing, entirely autonomous and equipped with the knowledge to handle emergency nursing. Helping patients did not necessarily mean that the SAN was required to establish a caring relationship, but instead to be distanced and objective. Nursing in the AS was perceived as different with a higher status and significance than in other nursing contexts. It included assessing signs and symptoms, as well as meeting and helping the patients with basic needs.

Nursing in the AS is for those who deserve it

In this category the SANs stated that they perceived nursing as a role play where they maintained a professional approach even if they disliked the patient. The attitude of patients and their significant others influenced how nursing was provided. There were perceptions that the patient must earn care by being polite. The SAN had perceptions that nursing was for vulnerable patients and not those who were rude or under the influence of alcohol or drugs.

Nursing in the AS is for those with the right condition

Nursing was perceived as restricted by the patient's condition, where the degree of severity determines whether or not nursing will be delivered. The patient was considered an object and those most acutely ill were also those who deserved medical care and nursing. The patient needed to fit into a profile for ambulance care. Older patients were considered more vulnerable and deserved more nursing care than younger patients.

The specialist ambulance nurses' perceptions of barriers

Culture and leadership as barriers to nursing in the AS

Culture and leadership are described as a barrier to nursing in the AS, where management tends to prioritize medical knowledge over nursing, particularly in urgent medical situations. Additionally, the relationship between management and the SAN plays a crucial role in shaping the perception of nursing. In a poor work environment, the provision of nursing actions to patients and their significant others may be negatively impacted. Conversely, if SANs have confidence in their management, their perception of nursing can be positively influenced.

Conditions as a barrier to nursing in the AS

The care context, including the care room in the ambulance, was perceived as having limitations for organizing and providing nursing interventions. Medical procedures for treating medical conditions were prioritized, while nursing activities were seen as

secondary and resources for nursing interventions were insufficient. Nursing is also limited by the characteristics of the patient such as age, perceived vulnerability and her/his attitude to the SAN. The category also comprised diverse perceptions, among which was the idea that empathy levels could fluctuate depending on the time of day. Working night shifts and experiencing fatigue were considered factors that could potentially have a negative impact on the quality of nursing actions provided and even justify neglecting the patient.

Framework as a barrier to nursing in the AS

The guidelines used are limited and only focus on the treatment of medical conditions, thus provide no guidance on nursing. There are varying perceptions of the triage system used, where one perception is that RETTS© is only performed for someone else. Another view is that RETTS© is important as it provides an objective and fair assessment that is not influenced by subjective opinions about the patient's needs.

There were also perceptions expressed that training and education in the clinical setting focused more on medical conditions and practical exercises than discussing and reflecting on patients with nursing needs.

The outcome space

The relationship between the seven different categories of SANs' perceptions that answer the question "What is nursing in ambulance care?" is illustrated in the outcome space (Figure 1). Four descriptions reflect SANs' qualitatively different perceptions about their role and responsibilities as nurses in the AS. The SANs also described three different perceptions of barriers to how nursing can be performed and what can limit the nurse in the care of the patient in the AS.



Figure 1. The outcome space

Study II

In Study II the characteristics of non-urgent patients were explored. Differences between the patients who were conveyed to the A&E and those who were subjected to non-conveyance were compared. In addition, it was investigated whether patients who were left at home sought care again within the next 72 hours, thus describing the short-term outcome of non-conveyance.

The main results were:

- More women than men were non-conveyed.
- Non-conveyance more often occurs out-of-hours, i.e., when the healthcare centres are closed, usually from 5:00 p.m. to 8:00 a.m. on weekdays, weekends and public holidays.
- More than half (53%) of the non-conveyed patients sought medical attention again within 72h.

Overall, the non-urgent patients (n=1,048) included in the study comprised more women (57.4%) than men (42.6%) (p<.001). There was no difference in mean age (68 years) between the sexes in the non-urgent cohort and the main complaints are presented in Table 3.

Table 3. The most common complaints in the non-urgent cohort

Assessed ESS in accordance with RETTS	Conveyed (%) n=727	Non-conveyed (%) n=321
Abdominal pain	13	10
Chest pain	12	6
Vertigo	11	7
Respiratory disorders	8	11
Unspecific symptoms	8	19

Of the patients conveyed to the A&E, the RETTS© triage level was to a greater degree yellow (p<.001). In addition, in the cohort with non-conveyed patients, the patients were also largely triaged (60%) as yellow according to the RETTS©. Almost a third of the patients (30.6%) were subjected to non-conveyance.

There was a significant age difference (p =.008) between the non-conveyed patients and those who were conveyed. The patients who were conveyed were older (mean 69 years) than the non-conveyed (mean 65 years). The most common complaints in the non-conveyance cohort are presented in Table 3.

After evaluation by the SAN, almost half of the patients (49.7%) received a medical or nursing intervention or were given self-care advice and subsequently discharged at the scene. It was determined that up to 26% of the patients did not require any further medical attention. Additionally, 18.6% of patients declined to receive care or transportation to either the A&E or a primary healthcare centre.

Non-conveyed patients who sought renewed contact within 72 hours

More than half of the patients (53%) who were non-conveyed sought care again within 72 hours. There was a significant (p<.001) predominance in the proportion of women (64.7%) in this group and the patients were significantly older (mean 68 years) (p=.006). The most common symptom among patients seeking care again was unspecific symptoms followed by respiratory disorders and persistent vertigo.

The cohort was divided into four groups by reason for non-conveyance:

- Non-conveyed with no further investigations, where 32.8% of the patients sought care again within 72h
- Referred to the A&E by own means, where 82.7% of the patients sought care again within 72h
- Referred to the primary healthcare centre by own means, where 69.7% of the patients sought care again within 72h
- Referred to be seen by a general practitioner at home, where 100% of the patients sought care again within 72h.

In the group *non-conveyed with no further investigations* nearly 40% of the patients summoned the ambulance again, 21% sought care at the A&E and 29% at the primary healthcare centre. In this group, 26% of patients were admitted to hospital. The initial reasons for non-conveyance were care intervention on site/self-care advice (43.1%), no need for care (34.5%) and did not want care (13.8%). The group *referred to the A&E by own means* followed the SANS' referral to a large extent (88.4%), while the patients *referred to the primary healthcare centre* did not follow this referral advice to the same extent (66%). In the latter group, 7.5% sought care instead in the A&E and 13% contacted the ambulance again. In the group *referred to the A&E by own means*, 26% of patients were hospitalised, while in the group *referred to the primary healthcare centre*, 9% were admitted to hospital. In the last group of patients that were *referred to be seen by a general practitioner* at home a quarter of the patients were admitted to hospital.

Discussion

Methodological considerations

In this licentiate thesis two different research methods have been employed, one with a qualitative design and the other with a quantitative design. In order to assess quality in research it is essential to discuss strengths as well as limitations (Polit & Beck, 2021). In qualitative research, ensuring trustworthiness is of importance, which involves four quality criteria, i.e., credibility, dependability, confirmability and transferability (Lincoln & Guba, 1985). Similarly, in quantitative studies the quality and limitations are discussed in terms of validity and reliability (Polit & Beck, 2021).

Study I

In Study I, a phenomenographic approach was used. Phenomenography was considered the natural choice as it is the empirical study of the different ways in which people experience, perceive, apprehend, understand and conceptualize the various phenomena in and aspects of the world around them.

Credibility in a phenomenographic study concerns the relationship between empirical data and the result with descriptions of how the participants perceive a certain phenomenon (Sjöström & Dahlgren, 2002). Similarities and differences in perceptions of the phenomenon must be backed by empirical data, in this study by interview transcriptions. To prevent pre-existing beliefs from influencing the results, all authors participated in analysing the interviews. (Lincoln & Guba, 1985). To further strengthen the results, quotations from the interviews were added (Sjöström & Dahlgren, 2002). The interviews were relatively short, which could pose a threat to credibility. To compensate for the short interviews (mean 22 min), oversampling was adopted to ensure credibility, although no new perceptions emerged after 10-12 interviews. In total, 19 interviews were performed. The variation in perceptions identified in the transcriptions strengthens the credibility and indicates that the data are sufficient (Sjöström & Dahlgren, 2002).

Dependability is a criterion for evaluating trustworthiness in qualitative research and refers to the stability of the findings over time and conditions (Lincoln & Guba, 1985). To increase dependability, an interview guide was used in all interviews and only two persons conducted the interviews under supervision. Strategic sampling was used to capture as many perceptions of nursing as possible. Using a strategic sample enabled variation in the study participants in terms of age, sex and work experience.

Confirmability refers to objectivity and whether the findings are grounded in the data collected (Lincoln & Guba, 1985). For confirmability to be achieved, the findings must reflect participants' voices and the conditions of the study as opposed to the researcher's perspective (Polit & Beck, 2021). The clinical pre-understanding of two of the authors (LF & AR) could have affected the interpretation and analysis of the data due to their extensive clinical experience as SANs. However, during the analysis there was an open dialogue with the other two authors (AF & AK) who have no clinical experience of the AS. Furthermore, the core objective of Sjöström and Dahlgren's (2002) method is to explore perceptions of experiences of something and not merely perceptions. This implies that the participants' various perceptions of nursing stem from experiences of the phenomenon and that the participants presumably endow these experiences with some form of meaning that in turn shapes their perceptions.

Transferability refers to the potential of transferring the findings to other settings or groups (Lincoln & Guba, 1985). An accurate description of the setting and study participants increases the possibility of transferability. Transferability can be considered high in a Swedish AS setting because the participants represent both rural and urban areas. However, transferability could be limited due to contextual factors such as workplace culture and management attitude.

Study II

In Study II we aimed to explore and describe the non-urgent patients and the outcome after the assessment when the patient was non-conveyed. Therefore, a descriptive, cross-sectional design was chosen.

To strengthen the internal validity of the study, the sample must be representative of the study population. To include patients in the study, we chose the inclusion criteria that patients should be 18 years of age or older at the time of inclusion. We wanted to explore and describe a study population that was classified as non-urgent and to define this population, the triage tool RETTS[®] was chosen. RETTS[®] yellow and green levels are defined as being able to wait for medical assessments and interventions without medical risk, which we chose to classify as non-urgent. The advantage of using the

RETTS© as an inclusion criterion is that SANs are comfortable with the instrument and use it in their daily work when assessing and prioritizing patients. The disadvantage is that the RETTS© is not validated as an inclusion instrument for research and there is also a risk of selection bias when evaluating the RETTS© triage colours against different outcomes. Nonetheless, during the evaluation of the RETTS© in a study where registered nurses triaged various patient scenarios, most of the scenarios (85%) were triaged with a level of variability. Additionally, almost half (46%) of the 46 scenarios were triaged on the border between yellow (stable) and orange (unstable) patients (Wireklint et al., 2018). Triage is a dynamic process during which the patient's condition can deteriorate or stabilise. The latter may be influenced by different interventions on the scene or during transportation. As for age, the non-conveyance group were younger compared to the group conveyed, which is comparable to other research in this area (Vloet et al., 2018).

The 72-hour limit for follow-up was chosen because it had been used in previous studies as a time limit for when a return visit can be said to relate to the original cause of contact with the AS (Magnusson et al., 2020; Spangler et al., 2020). However, the outcome is arguable as the initial assessment may have been completely accurate at the time it was performed and the patient may have been advised to remain at the scene and renew contact if symptoms do not subside.

Missing data are always a problem and must be managed. An advantage of our study is that we obtained informed consent from all the patients who participated in the research. Nonetheless, a drawback is that a considerable proportion (20.8%) of the sample had to be excluded due to incomplete information related to informed consent. Another limitation was that we were only able to include 5.5% of the eligible patients. There are practical obstacles to effective research in ambulance care contexts, e.g., trials involving acutely ill or injured patients who are unable to consent to treatment or study enrolment. Additionally, it is physically difficult for researchers to control the study and low study protocol compliance among SANs has been reported (Maurin Söderholm et al., 2019; Nichol & Huszti, 2007). We argue that it is feasible to derive multiple conclusions from a sample size of over one thousand participants. Furthermore, our findings align with the existing research in this field.

To collect data for the study, a study protocol was constructed by researchers (including LF and AR) and experts with profound knowledge of ambulance healthcare. Which data should be collected was discussed several times in the expert group. Using an expert group early in the planning of the study is a contributory factor for successful research (Leonard et al., 2012).

Discussion of the findings

The overall objective of this thesis was to understand SANs' perceptions of their professional role and responsibilities in nursing and illuminate possible consequences in terms of referral patterns for patients assessed as non-urgent in the AS context.

One of the main findings of this licentiate thesis is that there are variations in how SANs perceive, understand and conceptualize nursing within the AS. Four categories illustrate how SANs perceive nursing and how these beliefs influenced their perception of their professional role and responsibilities. Three categories described perceived barriers to providing nursing within the AS (Study I). This finding may affect the assessments and judgments that the SAN performs in the non-urgent patient encounter.

The interviews reveal that there is no common understanding among the SANs about what nursing means and how it should be understood within the AS. The four categories of perceptions ranged from perceiving nursing as focusing on the patient and establishing a relationship to a perception that the patient had to merit care by being polite. However, having varying perceptions about nursing is not only a phenomenon in the AS. Nurses working in a psychiatric department also had varying perceptions of nursing (Salberg et al., 2019). Their categories varied from perceptions where the patient was seen as an object and the focus was on symptoms and diagnoses to the need for nursing to have a holistic perspective on the treatment of mental illness (Salberg et al., 2019). Variations in the understanding of the professional role of nurses and patients were also found in a meta-synthesis of studies on how healthcare professionals perceived their work (Röing et al., 2018). In the aforementioned study, the views also varied from a reductionist perspective where the patient was seen as an object, i.e., as a body in need of biomedical treatment, to a view where the patients are seen from a holistic perspective. The same perceptions are found in Study I, where the patients are regarded as an object in one of the categories and those with objective signs of illness are considered to deserve medical attention and nursing interventions. Professional nursing is about understanding the patient as a person (Orlando, 2010). The foundations of the deliberative nursing process emphasize the shared relationship between the patient and the SAN. Orlando highlights the fact that the nurse must understand and gain a nuanced view of the patient as a person. In the meeting between patient and nurse, both patient and nurse are affected and react to each other's behaviour. The nurse's reaction is based on perception, thoughts and feelings. Orlando (2010) highlights the importance of distinguishing between observation and interpretation of observation. Based on this understanding, it can be assumed that patients who called an ambulance are likely to encounter a SAN with qualitatively

different ways of understanding the patient and her/his role, which in turn will probably affect the assessment and judgment of the patient. It is of the utmost importance that the SAN differentiates between insight into general principles and the observations she/he must perform in the specific nursing situation to help the patient. In making this distinction, the SAN first seeks to understand in what sense the observations made are relevant for the patient in a context of time and place and how the SAN can exercise her/his professional function in relation to it. The SAN should also be clear about how the patient is affected by what the SAN says or does (Orlando, 2010). To achieve a fair and equitable encounter between the patient and the SAN, it may be helpful to ensure that the assessment, judgment and nursing interventions provided by the SAN are founded/based on scientific knowledge and a person-centred approach (Rantala et al., 2019).

Patients have expectations of how the SAN should behave in the meeting. Part of the stereotype image of the nurse is that nurses are doers, including primarily performing tasks, such as administering medicine. Other expectations and images held by patients and society concern nurses' specific qualities of nurses, such as having compassion and being kind to patients (van der Cingel & Brouwer, 2021). If a patient with these expectations meets a SAN who believes that it is not necessary to establish a caring relationship, an imbalance may arise in the care encounter.

In Study I, categories of perceived barriers also emerged. Leadership and workplace culture, the care context and the available guidelines were perceived as barriers that prevented the SANs from providing nursing interventions in the AS. The management perspective was perceived as prioritizing medical expertise over nursing care, which is consistent with the findings of Holmberg et al. (2017) that medical knowledge is highly ranked by managers in the Swedish AS. In addition, conditions in the ambulance, i.e., the care context, were perceived to have limitations in terms of organizing and providing nursing interventions. Medical procedures for treating medical conditions were prioritized, while nursing activities were seen as secondary and resources for nursing interventions were insufficient. The SANs also perceived a lack of materials to perform nursing interventions. However, the ambulance is not considered a care room by the patients (Ahl et al., 2006). Calling for an ambulance is merely a way to get to the hospital when one could not manage it oneself. Nevertheless, the patients expressed that being cared for in an ambulance meant being cared for in a safe place (Ahl et al., 2006).

The SANs perceived that nursing interventions were not considered the most important task in the AS. Nursing and medical interventions provided in the AS are usually based on guidelines, which limits an independent freedom of action (Holmberg et al., 2017). However, in one category in Study I, the SAN mentioned a

lack of guidelines related to nursing actions. The existing guidelines focus on the treatment of medical conditions and provide no guidance for patients who require nursing. Perceptions were also expressed that training and education in the clinical setting focused more on medical conditions and practical exercises than discussing patients with nursing needs. In two studies (Ebben et al., 2017; Rosén et al., 2018), it is suggested that validated guidelines should be introduced to enable safe assessments of non-conveyed patients. However, there are also studies (Benneck & Bremer, 2019; Hagiwara et al., 2019; Johansson et al., 2022) pointing out that SANs do not follow the guidelines. The more resources such as guidelines and triage tools that the SANs can access, the more resources they can lean on for support when needed to help the patient. However, these resources should be understood as tools that SANs can use to help people, not as principles that guide SANs' practice (Orlando, 2010). In addition to expanding the SANs' repertoire in the assessments and judgments of both urgent and non-urgent patients, it was suggested that their clinical decision-making skills and clinical judgement should be developed. Reflection on practice is essential for the development of clinical knowledge and improved clinical reasoning (Tanner, 2006). Today, reflection is an explicit part of practice in many interpersonal professions. Reflecting is an act that can be trained and practiced both individually and collectively (Schwartz, 2019).

Another finding is that when deciding on referral for non-urgent patients, a consequence was that more than half (53%) of the non-conveyed patients sought care again within 72 h, possibly resulting in delayed care. It is not surprising that 30% of the patients in Study II were non-conveyed. This is consistent with several other studies performed in the western world, where the non-conveyance rate varied between 13.8-41.7% (Heinonen et al., 2022; Hoikka et al., 2017; Lederman et al., 2020; Magnusson et al., 2020; Vloet et al., 2018). However, it is surprising that more than half (53%) of the non-conveyed patients sought care again within 72 h. This is a higher number than in other studies that also investigated whether patients subsequently consulted another healthcare provider (Breeman et al., 2018; Paulin et al., 2021). In studies about satisfaction with a non-conveyance decision, patients and significant others were satisfied overall with the care provided by the AS despite being non-conveyed (Larsson et al., 2022). This raises the question of why patients seek further medical attention. There are, however, numerous reasons why patients may do so. For one group of patients, the SANs' conduct when the patient was non-conveyed may seem like the correct clinical judgment based on the SANs' assessment and observations at that time. The SAN may have urged the patient to seek medical assistance, for example by referring her/him to the A&E or primary healthcare, but that transportation by ambulance is not necessary (Study II). Another reason could be that the condition

worsened and that the patient was initially advised by the SAN to wait and seek care in the event of deterioration in her/his condition. However, one of the most common reasons for the patient seeking care again is an erroneous assessment, incorrect decision-making and poor clinical judgment (Hagiwara et al., 2019; Johansson et al., 2022).

Another finding is that a large proportion of non-conveyed patients were assessed as having non-specific symptoms, which may indicate that the assessment is based more on objective vital signs, e.g., respiratory rate and blood pressure, instead of trying to understand the patient's basic needs.

In Study II the most common initial cause in the patients who sought care again was ESS code 53: non-specific complaints. There are many factors to discuss regarding ESS code 53: non-specific complaints. There is no definition of what non-specific complaints are. It is often a subjective assessment by the SAN after ruling out other ESS codes (Castrén et al., 2015). Patients with non-specific complaints generally present with normal vital signs (Ivic et al., 2020). Common descriptions of search causes are "generalized weakness," "feeling exhausted" and "recent falls" (Nemec et al., 2010). The fact that the patient is assessed and categorized as having non-specific complaints can be due to various reasons. But it could also be that the SAN based her/his assessment and judgment on the perception that the patient needs to fit into a profile of what ambulance care is, where older patients are considered more vulnerable and deserving of nursing than younger patients or to the perception where patients were regarded as an object and those who were most seriously ill were those who deserved medical attention and nursing (Study I).

How care is delivered depends heavily on the SAN and her/his nursing judgment (de Tantillo & De Santis, 2019). There may be a deficiency in the SAN's ability to perform an accurate clinical judgment based on decision-making and her/his perception, thoughts and feelings regarding the patients (Orlando, 2010). Clinical judgment also varies in line with experience and SANs must integrate a plethora of environmental, patient and event specific cues in their clinical decision-making processes (Gugiu et al., 2022). Missed cues may lead to disparities in care and misunderstandings between patients and SANs (Gugiu et al., 2022).

However, the SAN's subjective perceptions and biases have a greater impact on clinical decision-making than objective data about the situation being assessed (Tanner, 2006). If a SAN fails to apply nursing judgment in any aspect of care provision, it could potentially jeopardize the safety of the patient. This may occur either by carrying out an incorrect action or by omitting a necessary one (de Tantillo & De Santis, 2019). It is crucial to identify the minority of patients who deviate from the norm and have time-sensitive conditions among those who are triaged as non-urgent, while

comprehending the reasons for seeking care in patients with non-specific symptoms is also important. A study conducted in Sweden aimed at establishing the frequency of severe conditions among patients with un-specific complaints who presented to the AS revealed that over a third had a serious condition (Ivic et al., 2020).

The profession of SAN is rapidly evolving. The AS as well as society has changed in the almost 20 years since the SAN entered the AS (Suserud, 2005). Ambulance care today has also become more multifaceted with different assessment vehicles, such as single responders (Magnusson et al., 2016) and pre-hospital emergency psychiatric ambulances (Todorova et al., 2021). In addition to the traditional roles of assessing, treating and transporting the sick and injured to the A&E (Suserud, 2003), the SAN now has a new role of treating patients at home, referring to non-urgent levels of care and safely discharging patients in their homes. Assessment and non-conveyance constitute a level of care that is here to stay. However, the role of SANs in the AS needs to be defined and developed to ensure that patients receive good quality care on equal terms as set out in the Health Care Act (2017:30).

Conclusions

The main conclusions in this thesis are:

- There are a variety of perceptions of nursing within the Swedish AS, where four qualitatively different professional SAN approaches exist, presumably affecting the assessment and judgment of the patients' condition, while three categories outline the perceived barriers to SANs fulfilling their role and responsibility.
- More women than men are non-conveyed.
- More than half of non-conveyed patients seek care again within 72h.
- A large proportion of non-conveyed patients seem to have unspecific symptoms.

Clinical implication & further research

These findings raise questions about how knowledge pertaining to the role of SAN is discussed in the Swedish AS. The results indicate that the SANs' knowledge of what nursing is and what it means to the patient is somewhat deficient. A nursing theoretical framework such as Orlando's deliberative process can be implemented in the Swedish AS as an opening to increase knowledge about the SANs' role. In addition, it may also be helpful to ensure that the assessment, judgment and nursing interventions provided by the SAN are based on scientific knowledge and a person-centred approach.

The results should also have an impact on the future development of the SAN curriculum. An in-depth understanding of SANs' perceptions of their nursing experiences is critical for properly implementing the nursing process both in the Specialist Nursing Pre-hospital Emergency Care curriculum and in clinical practice. The need to enhance the clinical decision-making skills and clinical judgement of SANs to broaden their assessment and judgemental abilities when dealing with both urgent and non-urgent patients has also been suggested. As a complement to the measures proposed above, it is also necessary to develop and implement evidence-based nursing guidelines in the AS.

Based on the findings in this thesis, further studies are needed to explore the meaning of patients' experiences of being non-conveyed and of seeking care again to fully capture the intricacy of the non-conveyance situation. Future research should also focus on trying to gain a deeper understanding of the SANS' reactions in the patient encounter to determine how the assessment process can be understood when assessing non-urgent patients.

Mina tack

Det är med både en stor glädje och med en portion vemod, som jag nu kan konstatera att sista ordet snart är skrivet under min tid som forskarstuderande. Ni är många som förtjänar ett tack och som har haft betydelse på olika sätt under denna tid. Ingen är bortglömd men några personer vill jag speciellt rikta mina tack till!

- Till min huvudhandledare **Anna Forsberg**, och till mina bihandledare **Andreas Rantala** och **Annika Kisch**. Ni har lärt mig att ensam inte är stark och utan er hade jag aldrig nått i hamn. Ni är alla tre tillsammans den fyr som lyst upp vägen även när det stormat som mest och jag kunde inte fått bättre handledning. **Anna**, för dina kunskaper om omvårdnad som du så generöst delat med dig av är jag dig evigt tacksam. Du har tvingat mig till att reflektera över begrepp och ontologi inte bara en gång. Nu börjar det sitta! **Andreas**, för långa och många samtal om de ”mjuka” delarna av ambulanssjukvård och dina stora kunskaper i kontexten är jag dig tack skyldig. **Annika**, du har funnits med som en trygg klippa som alltid lyssnat och fört mitt arbete framåt. Du är också den som verkligen lärde mig att säga nej. Tack!
- **Ett stort tack till alla som deltagit i mina studier.** Tack till alla specialistutbildade ambulanssjuksköterskor som varit informanter. Tack till alla er som hjälpt till att samla in information. Utan er hade det inte varit möjligt!
- Ett stort tack till **Ambulanssjukvården i Helsingborg** där jag började min bana som doktorand. Ett speciellt tack till **Håkan Kerrén** och **Anna-Karin Hultman** som trodde på mig och lät mig få utrymme i tjänsten för att detta skulle kunna bli möjligt. Ett lika stort tack till **Akutmottagningen vid Helsingborgs lasarett** som ”tog över mig” och fortsatte ge mig utrymme för studierna. Speciellt vill jag tacka **Karin Nilsson**, **Margareta Clausen** och **Marie Andréasson** för trixande och fixande så jag har kunnat ägna en del av min tid till mina studier. Jag vill också rikta ett stort tack till alla kollegor som jag mött, både på ambulansen och på akuten. Ni vet vilka ni är. Tack!
- Tack till alla i min forskargrupp, **Vård i högteknologisk miljö**. Ni är många som passerat in och ut under åren och berikat min vardag. Här skulle jag kunna skriva ingen nämnd och ingen glömd men jag vill ändå speciellt tacka ett par personer: **Anneli Sundberg**, min ”gamla fröken” som var en förebild för mig när jag pluggade

till sjuksköterska och fortfarande agerar som en förebild ska. **Gunilla Andersson**, du har varit med från början, du har alltid förhört dig och haft ett vänligt ord till övers. **Karin Ångeby**, för din härliga och positiva energi. Tack också till **Jenny Gårdling** och **Annelie Augustinsson** som varit med på resan från start. Tack till er som kommit till och tillfört nya tankar, idéer och ny positiv energi till gruppen: **Igor Stepanovic** (min ambulanskompis), **Eva Åkerman**, **Carina Sjöberg**, **Camilla Viseu** och **Eva Hettinger**.

- Jag vill också rikta ett tack till min nya forskargrupperchef **Pether Jildenstål**. Tack för att du stöttat mig i processen att bli klar med min forskarutbildning.
- **Anneli Jönsson**, min trogna kumpan och kollega. Du förtjänar så många tack. Du gick före, lyste upp och visade vägen. Tack för all din stöttning och för att du alltid har tagit dig tid till att lyssna och oförtröttligt svarat på frågor om än det ena och än det andra. Nu närmar sig äntligen slutet på denna resa även för mig!
- **Eva I Persson**, min forna handledare och goda kollega. Du botade mig från mitt kommaterings-missbruk och har bidragit till härliga diskussioner, goda skratt och också varit ett gott resesällskap.
- Ett stort tack till **Pia Lundqvist** och forskargruppen **Hälsa i ett tvärvetenskapligt perspektiv** som så generöst bjöd in mig till deras doktorandträffar när jag blev ensam kvar i min doktorandgrupp.
- **Anna Blomgren**. Tack för terapi och för att du tagit dig tid att hjälpa mig med att få till en "snygg" avhandling. Tack också för att du varje gång lär mig något nytt!
- Tack till **Anna Lönnaeus** och **Linnea Gard** som sedan pandemin sett till att jag har haft fötterna på jorden och minst ett stickprojekt i händerna!
- **Emmy Nilsson** och **Marita Dalvindt**. Utan er vet jag inte om jag kommit genom statistikkursen med "vettet" i behåll. Tack för det!
- **Pappa...** du var med från början men fick tyvärr inte vara med till slutet. Jag vet att du var så stolt över mig!
- **Magnus, Elin och Kajsa**. Jag kan inte lova att jag ska börja laga mat, för jag har glömt hur man gör. Men jag kan lova att jag nu ska vara lite mer närvarande och inte bara sitta vid datorn och häcka. Tack för att ni har trott på mig hela tiden! **Tack Magnus** för ditt ovärderliga stöd i livets alla vedermödor. **Tack Elin** för att jag fått låna ditt rum som kontor även när du sover så sött vid min sida. **Tack Kajsa** för din underbara spontanitet och ditt peppande. "OMG, har du skrivit en bok! Bra jobbat!" Jag älskar er alla!

Om jag glömt någon ber jag om ursäkt och säger allra ödmjukast. Tack!

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Study I





Article

Specialist Ambulance Nurses' Perceptions of Nursing: A Phenomenographic Study

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Received: 27 April 2020; Accepted: 8 July 2020; Published: 13 July 2020



Abstract: Although nursing is the main area of interest in the curriculum of the specialist ambulance nursing program in the advanced level of education, there has been reported a lack of knowledge about nursing in within the ambulance service. The aim was to explore specialist ambulance nurses' perceptions of nursing, which were explored by employing a phenomenographic approach. The study comprises individual interviews with 19 strategically selected specialist ambulance nurses. The results showed seven descriptive categories emerged detailing the variations in how the specialist ambulance nurses perceive, understand, and conceptualize the phenomenon of nursing in the Swedish Ambulance Service. Four categories revealed the specialist ambulance nurses' qualitatively different perceptions of nursing, i.e., their role and responsibility, while three showed perceived barriers to assuming their role and responsibility, comprising culture and leadership, conditions, and framework. The seven categories are outlined in the outcome space. In conclusion, there is a very wide variety of perceptions of ambulance nursing within the Swedish Ambulance Service. There is a need for implement the nursing process both in the Specialist Nursing Pre-hospital Emergency Care education curriculum and within clinical practice. Further, there is a necessity to develop and implement nursing guidelines in the ambulance.

Keywords: ambulance service; nursing; phenomenographic; qualitative; EMS; emergency medical services

1. Introduction

Health care provided by ambulance professionals is often associated with emergency medicine, traumatology and disaster medicine [1], despite the fact that approximately 50% of assignments are labeled non-urgent [2]. The rationale behind this study is the need to explore the specialist ambulance nurses' (SANs') perceptions of nursing based on their experience within the Swedish Ambulance Service (AS) due to the reported lack of knowledge about nursing in ambulance care [1,3–5]. Recent research in the AS context reveals little or no focus on nursing [6,7]. Research pertaining to (SAN) has focused on what a SAN needs to know from educational content to critical incidents [8] and on aspects of competence and education [9].

Nursing is the main area of interest in the curriculum for both the nursing program and the specialist nursing program in the advanced level education. Thus, nursing is the specific competence for which nurses are responsible, regardless of context [10]. Nursing is both central and essential to the delivery of high-quality care in different healthcare settings [11]. In hospital environments, the risk of mortality decreased the higher the number of nurses with academic degrees who were employed [12].

When encountering patients who have severe traumatic brain injuries, registered nurses (RN) in the AS with specialist qualifications increased the quality of the assessment [13].

One aspect that presumably influences the delivery of nursing within the AS is that nursing is a complex phenomenon that can be illuminated through a variety of theories and methods. Each nursing theory provides a specific view on nursing designed to help the nurse in her/his practice. However, there is general agreement that there is a caring dimension within nursing, where caring is considered an interpersonal process characterized by expert nursing, interpersonal sensitivity, and intimate relationships [14]. Knowledge of nursing values, which represent important principles of human dignity, integrity, altruism, and justice [15], is essential for nursing practice in the AS. Thus, they should serve as a framework for the SANs' standards, professional practice, and evaluation. The articulation of core professional values may help unify the profession [15,16] and demonstrate the value of nursing to the public [15].

The basic epistemological question about how SANs perceive nursing in ambulance care remains to be answered, thus the specific aim was to explore the SAN's perceptions of nursing. To the best of our knowledge, no available studies focus on SANs' perceptions of nursing within the Swedish AS. Thus, there is a knowledge gap that needs to be narrowed. Our assumption is that SAN's perception of nursing constitutes the foundation for their assessment and judgment of patient needs and preferences. It might thus form the basis for how guidelines are used and referrals made [17].

The Context of Swedish Ambulance Service

The SANs' nursing responsibility is basically the same as that of other nurses, although with the inherent challenge of a huge variety of assignments involving both serious road accidents and major catastrophes as well as non-urgent, complex patients with chronic conditions in a multitude of home environments, which involve a unique responsibility for care and the need for special skills [17]. The SAN is obliged to provide nursing to patients from birth to death with reference to each person's lived experience and life world [18]. In Sweden, the SAN makes decisions based on assessment tools and guidelines developed to evaluate patients' medical condition. To distinguish between life threatening and non-urgent conditions the Rapid Emergency Triage and Treatment System (RETTTS) is used nationwide, with only a few exceptions [19,20].

Ambulance staffing varies between and sometimes also within countries [21]. Sweden has, together with a few other countries such as Finland, the Netherlands, and Belgium, decided to staff ambulances with RNs [22]. Some counties in Sweden have chosen to staff the ambulance with SANs as the highest level of competence. In Sweden, the AS is organized autonomously in each county, which means that staffing and the required level of education for ambulance nurses varies between regions. Normally, SANs work in pairs and act as a team with another RN or an emergency medical technician (EMT), where the SAN (or RN) is responsible for the quality of care [9,23]. All nurses have three years of higher education at undergraduate level comprising 180 higher education credits ECTS with a bachelor's degree in nursing [24]. The SAN education is at an advanced level and concludes with a Postgraduate Diploma in Specialist Nursing Pre-hospital Emergency Care and, at most universities, a Master of Science Degree (60 higher education credits ECTS in Nursing/Caring Science) [22]. SAN is a protected professional title [25].

The competence description for an RN with a postgraduate diploma in specialist nursing–prehospital emergency care outlines what is unique in the SANs' field of competence [25]. On the basis of the patient's individual needs and sometimes complex illnesses, the SAN should independently assume responsibility for advanced nursing in an unpredictable prehospital environment, at times under stressful working conditions and with limited resources. This requires the SAN to have the necessary skills to deliver person-centered, evidence-based, equal, and accessible ambulance care [17].

2. Materials and Methods

A qualitative design with a phenomenographic approach was chosen, as the aim of this study was to explore specialist ambulance nurses' perceptions of nursing, to report the variations in how SANs perceive, understand, and conceptualize the phenomenon of nursing [26–28]. Qualitative analysis of human phenomena always involves both description and interpretation. According to Dahlgren and Fallsberg [28], in phenomenography description is superordinate to interpretation. The objective of phenomenography is to arrive at a conceptual description. The result is a description of similarities and differences in terms of how a certain component, aspect, or both is actually conceived of.

2.1. Selection and Participants

Inclusion criteria were being a SAN with a Postgraduate Diploma in Specialist Nursing Pre-hospital Emergency Care and currently working as a SAN within the Swedish AS. The participants were recruited from seven different ambulance stations in the South of Sweden covering both urban and rural areas and represent a variety of work experience, gender, and age (Table 1). Consequently, they should have gained in-depth knowledge of nursing care in the AS field in line with the existing competence description [25]. The study comprises interviews with 19 strategically selected SANs—ten women and nine men—with a mean work experience as a SAN of 7.47 years (range: 0.5–14). All participants had previous work experience as RNs (Table 1).

Table 1. Characteristics of the specialist ambulance nurses (SANs) (n = 19).

Years of Age	Men 47% (n = 9)	Women 53% (n = 10)
<30	1	1
31–40	2	5
41–50	5	3
51–60	1	1
>61	–	–

2.2. Data Collection

A person responsible for education within the AS approached potential participants who met the inclusion criteria and who were willing to participate. The contact details of those who agreed to participate were handed over to two RNs who were also master students. The two RNs then arranged and helped to conduct all the interviews. The individual interviews were performed in September and October 2017 and comprised a limited number of pre-formulated questions, with most questions posed on the basis of the initial responses. All interviews were conducted at the participants' workplace in a quiet and secluded room at the ambulance station, either immediately before or after a shift. The participants were first asked to describe their background and experience as a SAN as well as their previous experience as a general nurse. The actual interview then began with the question "When I say nursing, what comes to your mind?" followed by "Can you please tell me how you perceive nursing within the ambulance service?" Open-ended follow-up questions were posed in order to elucidate and deepen the responses. The interviews lasted between 10 and 35 min with a mean time of 22 min. The total time for all interviews was 423 min, which generated 97 transcribed pages. The interviews were audio taped and transcribed verbatim.

2.3. Data Analysis

All four authors participated in the subsequent analysis, which followed the seven steps described by Dahlgren and Fallsberg [28]. First, we discussed the result of the interviews with each other and read the transcribed material several times (familiarization). Second, we identified the most significant parts of the responses from each participant (condensation). In the next step, comparisons were made,

and we tried to find similarities and differences in the material. In step four, the similarities and differences identified were grouped and related to each other (grouping). Tables 2 and 3 illustrate the various perceptions behind the categories. In step five, the categories were articulated, and we decided where to draw the boundary between the different perceptions (articulating). Steps four and five were repeated several times to adjust the categories. After that we named our categories (naming) to reflect the meaning of the material. Finally, all categories were reviewed by comparing them with each other to ensure that they could not be associated with other categories (contrasting). To clarify the results in the text, important perceptions were illustrated with quotations [27]. A structure showing the relationship between the categories was designed. In phenomenography, this structure is called the outcome space and is regarded as the main result of the study [26] (Figure 1).

Table 2. The SANs' perceptions of what nursing means and how it affects their perception of their role and responsibilities.

Categories	Variation in Perceptions of the SAN's Role and Responsible
Nursing in the AS means establishing a caring relationship as a foundation for care	<u>Nursing means:</u>
	- establishing a relationship and focusing on the patient
	- caring for patients who are unable to take care of themselves
	- emotions, empathy, and understanding the patient
	- everything we do to the patient, physically, and emotionally
	- providing comfort and information
Nursing in the AS means delivering professional care based on experience and scientific evidence	<u>Nursing means:</u>
	- meeting basic needs
	- helping the patient with her/his needs
	- assessing signs and symptoms
	- interventions aimed at health promotion
	- the conversation
- non-pharmacological pain relief	
Nursing in the AS is for those who deserve it	<u>Nursing means:</u>
	- the view of the person affects nursing
	- the attitudes of patients and relatives influence how nursing is provided
	- patients with a bad manner receive little or no nursing care
Nursing in the AS is for those with the right condition	<u>Nursing means:</u>
	- the level of emergency is decisive for whether nursing is provided
	- emergency and non-emergency nursing, where a psychiatric problem is not deemed an acute condition
	- the delivery of nursing care differs between young and old patients
	- frequent callers receive the worst nursing care and things are omitted

Table 3. The SANs’ perceptions of the Ambulance Service context and organization affecting their perceived role and responsibilities.

Categories	Variation in Perceptions
Culture and leadership as barriers for nursing in the AS	<ul style="list-style-type: none"> - The employer’s perspective on nursing means a great deal - The leadership, environment, and workplace are decisive for nursing practice - You are supposed to hate nursing when you work in the ambulance - Nobody wants to develop nursing and nobody cares - There is no status in nursing
Conditions as a barrier for nursing in the AS	<ul style="list-style-type: none"> - Enough time ensures excellent nursing care - The medical work is always the priority - The strong medical focus is a barrier to nursing care - We lack tools for nursing - We cannot perform practical interventions - We cannot perform wound dressing or flush catheters - It is impossible to record nursing in the ambulance journals - You are unable to follow-up your patients - Working night shifts and being tired have a negative effect on how you deliver nursing care - Empathy varies depending on the time of the day and type of assignment - The longer your work experience the more bitter you become

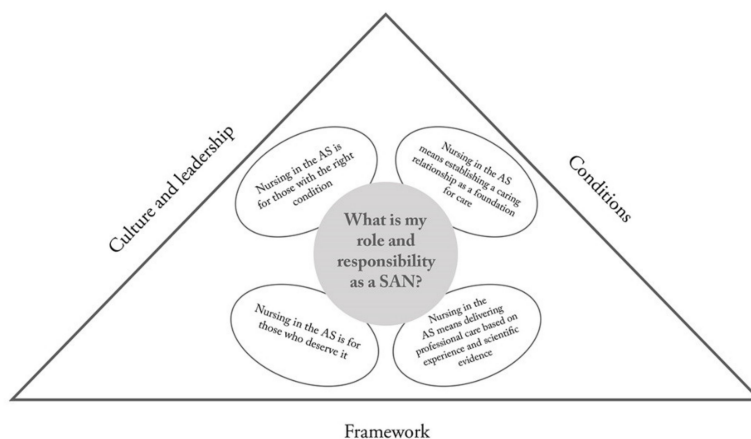


Figure 1. The outcome space.

2.4. Ethical Considerations

As the study did not involve sensitive information pertaining to patients or other vulnerable persons dependent on care, ethical approval was not required in accordance with the Swedish Law concerning Ethical Review of Research Involving Humans [29]. Ethical considerations pertaining to information, consent, confidentiality, and utility were taken into account in line with the Declaration of Helsinki [30]. All participants received both verbal and written information about the study objective, that participation was voluntary, and that they could withdraw from the study at any time without any negative consequences for themselves. The participants may have found it difficult to discuss their perceptions of nursing experiences in case their views differed from those of their colleagues. However, the benefit of the study was considered higher than any harm to the participants, all of whom were

clearly informed that their answers could not be traced back to them. Written informed consent was obtained by the interviewers before the interviews.

3. Results

Seven descriptive categories emerged, detailing the variations in how the SANs perceive, understand, and conceptualize the phenomenon of nursing in the AS. Four categories show the SANs' qualitatively different perceptions of nursing, i.e., their role and responsibility (Table 2), while three outline the perceived barriers to assuming their role and responsibility as SANs, i.e., the culture and leadership, conditions, and framework (Table 3). The seven categories outlined in Figure 1, constitute the outcome space.

3.1. Nursing in the AS Means Establishing a Caring Relationship as a Foundation for Care

In this category, the informants perceived that the relational aspect is a vital part of nursing. It involved being kind and helpful, listening to the patient, holding her/his hand, establishing trust, managing the conversation, providing comfort, calming people, explaining what has happened, and what will happen next. Nursing in the AS was perceived as something that differed from hospital nursing actions/nursing actions in a hospital with different conditions and a need to take significant others into account.

"It is all about diversity in the AS because you are in the patients' homes. In the hospital you focus on disease, treatment, and discharging them. Here you are in their home and that includes everything."
(Informant no 16)

Nursing in the AS was perceived as something that is shaped by a genuine will to invite the patient into a caring relationship. The nurse is there for the patient and assisting patients was considered the SANs' key mission in partnership with the patient and her/his significant others.

Within the caring relationship nursing was provided from a holistic perspective, mainly in the patient's own home where the SAN perceived her/himself as a guest.

"It is about the patient's experience./ ... /to focus on the patient and provide information in an appropriate way, about the things we are about to do ... We enter their bedroom, apply various strange devices and they don't have a clue about what we are doing. That's the moment when you need to sit down and give them your full attention, focus on their needs but also on giving them a proper explanation about what we are doing." (Informant no 2.)

One possible outcome could be that patients were left at home in their familiar and safe environment, i.e., not conveyed to the Accident and Emergency Department (A&E). It was obvious that the nursing interventions had to be adjusted to the individual patient's needs and preferences as well as her/his home situation. Based on the SAN's impression of the living conditions and the patient's home a comprehensive picture emerged. Aspects such as living alone, various aids, home care assistance, and the level of personal autonomy were considered. Documenting the assessment was viewed as important in order to provide a relevant foundation for the next level in the care chain. Being able to focus on one patient at the time meant less stress and simplified the assessment process. Long distance transportations provided time to establish a respectful and trusting relationship that facilitated the next encounter at the A&E after arrival at the hospital. As the caring relationship that was viewed as the foundation of nursing, factors that might negatively affect it were night shifts, tiredness, own personal problems, and the significant others' concern and anxiety.

3.2. Nursing in the AS Means Delivering Professional Care Based on Experience and Scientific Evidence

In this second category, it was perceived as important to emphasize the distinction between the SAN and professional nurses in other contexts, while highlighting the SAN's status and significance.

The SAN was perceived as an expert on nursing, not at all like community nurses, but completely autonomous and possessing the knowledge to manage emergency nursing. The participants' perception was that nursing actions are shaped first and foremost by the personal character of the SAN but also by education and nursing science. It was perceived that research advances nursing practice but that it is important to narrow it down. Nursing was perceived as either possible to develop through research and formal education or impossible to develop because developing nursing is totally dependent on the personality and will of the individual SAN. This revealed an inherent paradox, as some of the participants considered that research, education, supervision, and peer learning were valid tools for the development of nursing, while others perceived nursing as a personality trait inherent in one's nature.

"If all the SANs in your crew are skilled in nursing you can learn from them even if you don't possess the skills or competence yourself." (Informant no 7.)

The SAN's role and responsibility was perceived as helping the patient by being distanced and objective and not necessarily through a caring relationship. The choice of nursing actions might be affected by the SAN's professional competency and ontological assumptions. Nursing was perceived as highly personalized and mirrored by the SAN's actions.

3.3. Nursing in the AS is for Those Who Deserve It

In this category the informants described nursing as role play where the AS approaches the patient in a professional manner even if the SAN dislikes the patient.

"That is how you behave, you put on 'your nursing suit'." (Informant no 7.)

It was clear that the quality and magnitude of nursing interventions were affected by the patient's behavior. If the patient's behavior was considered bad, the nursing care was limited to a minimum. This also occurred if someone was viewed as rude or under the influence of alcohol or drugs. Even if the SAN was aware of the regulations and professional standards, it was perceived as a professional right to apply zero tolerance based on one's own personal level of moral stance.

"Because if we meet someone who has a bad manner, it affects how we provide nursing as they simply don't receive any care. You see, personally I do all I can for the patient, but if they are real scumbags or if they do things to you, they get as little care as possible. You give basic treatment for their symptoms and nothing more. Of course, there are regulations and I'm obliged to perform certain nursing interventions, but there is a limit to what I tolerate. I apply zero tolerance. You simply ignore the patient's wellbeing and merely do the basics." (Informant no 7.)

3.4. Nursing in the AS Is for Those with the Right Condition

In this category, the SANs' perception of nursing was the provision of biomedical care to the patient. The patients were viewed as an object, a body in need of biomedical treatment. If there was an emergency medical condition the patient was prioritized and received medical treatment. Older patients were considered vulnerable and entitled to more nursing interventions than younger ones. In this category, nursing is influenced by the SAN's personality and her/his personal method of providing nursing. The patient must qualify for ambulance care by her/his behavior and by having the "right" medical condition (i.e., not patients presenting with, e.g., psychiatric symptoms). If the patient fits the profile and criteria for ambulance care she/he is entitled to good nursing. However, the SAN's empathy and patience are limited if the patient is deemed to be in need of a community nurse or care from the primary health care center.

"Some of the patients we visit could instead have been taken care of by a community nurse or the home care service, or they could have gone to their primary healthcare center. And there is a lot of stress and you get annoyed and perhaps you don't care as much as you should about the patient . . . well you

might care, but you don't have the same patience . . . when there is no food break on your shift or time to go to the toilet, and you constantly visit patients who could have gone by ordinary transport to the hospital or whatever.. / . . . /I can't forbid people to call for an ambulance, of course they are allowed to do that, but sometimes it is clear that we are not the ones to solve their problems as they could do so on their own." (Informant no 6.)

There was a perception that the SAN uses fewer friendly words and ignores certain things when the patient has the "wrong" condition. This also occurred during nightshifts and if the team spirit was poor.

"I believe that you lose your temper much more easily, you don't spend that much energy you might try to solve the patient's problem by helping her/him to the primary care center or manage to wait for the community nurse But you feel frustrated and you don't provide the same nursing care and you are less empathic." (Informant no 6.)

3.5. Culture and Leadership as Barriers for Nursing in the AS

In this category, the various perceptions of the culture and leadership stemmed from a sense of inferiority, revealing that nursing has low priority and that managers determine the status of nursing in the AS. There is a perception that nursing is something that is not performed in the AS.

"And ehh...if you choose to work in the ambulance service it's sort of expected that you should almost hate nursing as well." (Informant no 17.)

There were also perceptions that the organization affects nursing in different ways. If the management has a bad relationship with staff, the staff members become frustrated, which influences their relationship with the patient and significant others. However, when staff members have confidence in management they respond better to patients and their significant others.

"But if you want the staff to function well, it is important that the management is first and foremost nice, that you can trust them. Because that's what I feel I'm suffering from in this business. You never really know where you are. You don't know if they are honest." (Informant no 12.)

The team in which the SAN works also has a great impact on nursing. If the team has a negative attitude towards nursing it characterizes the SANs' work and can also affect the choices made for the patient. For example, some patient groups are not expected to be transported by ambulance for further care and nursing.

"You are never expected to bring a back pain, for example, to the A & E because they do nothing." (Informant no 15.)

There was also a perception that SANs do not discuss nursing. Only the medical treatment, what was done, and what effects it had on the patient are discussed to some extent. As nursing does not have a high status/is not prioritized the SANs do not talk about it.

3.6. Conditions as a Barrier for Nursing in the AS

In this category, all the perceptions of barriers regarding conditions were based on acceptance of the fact that the AS is not organized for the provision of nursing.

"We also have no good tools, you can always convey the patient based on your own impression / . . . /but we have no good tools for nursing." (Informant no 2.)

The medical work is always number one. The provision of nursing depends on the time available, the perceived vulnerability and age of the patient, as well as her/his attitude and conduct.

One perception concerned the fact that AS nursing guidelines could promote development by facilitating quality evaluation. However, the current lack of such guidelines was perceived as a barrier along with insufficient records of the patient's nursing needs and lack of equipment for specific nursing interventions, e.g., wound dressing and changing catheters.

"I think it's easier for it (nursing) to fail than medication and suchlike. You cannot review it in the same way as reviewing a medical record." (Informant no 12.)

The category conditions included various perceptions that empathy varies depending on the time of the day and type of assignment. Working night shifts and being tired were perceived as factors that have a negative effect on how nursing care provided and could also justify the decision to ignore the patient. Finally, it was perceived that the longer one's work experience the bitterer one becomes.

3.7. Framework as a Barrier for Nursing in the AS

The AS is regulated by guidelines, e.g., the RETTS, and in this last category, perceptions varied regarding the value of these algorithms that solely focus on the disease as evidenced by the medical signs and objectively verified symptoms. There were perceptions that the RETTS does not support nursing but is performed for someone else's sake. There was also a perception that the RETTS is the most important thing that has happened in the AS due to the fact that patients are now being assessed objectively and not judged on personal interpretations and opinions about who is in need of care. The ambulance record focuses solely on documenting the correct triage level based on RETTS as well as the patient's visual signs and vital parameters with no space to document nursing.

"There are also check boxes where you can fill in the patient's nursing needs, if the patient needs help with walking and standing or eating and drinking and suchlike". (Informant no 15.)

There are perceptions that the lack of nursing guidelines affects the care of the persons in need of nursing and also that the SAN education as well as the training provided in the workplace do not focus on nursing, but mostly on medicine and practical issues.

"You should have at least four years of nursing in...yes ... the basic education and the specialist training ... then you should be a little better at understanding this and be a little more interested in nursing." (Informant no 15.)

3.8. Outcome Space

The outcome space (Figure 1) illustrates the relationship between the seven different categories, where the question: "What is nursing in ambulance care?" is answered based on four qualitatively different descriptions of the SANs' role and responsibility. These four descriptions reflect the fact that there are barriers to what nursing is and how it can be performed. These barriers form three different descriptive categories, constituting the boundaries of the SANs' perceived role and responsibility. The similarities found between the four descriptive categories pertaining to the role and responsibility of the SAN were that the nursing role was perceived as associated with the personality of the nurse and subsequently that nursing was provided based on the nurse's personality. The nursing spirit was emphasized as the core of the professional AS. Either one has or does not have the spirit or interest in the patient, therefore nursing was considered something inherent that cannot be learned. Providing a service and ensuring that patients are transported to the right level of care was deemed essential, as was making sure that the patient is well when it is decided not to transfer her/him to the hospital. Nursing in the AS was also perceived as different from the nursing provided in a hospital, often described as something instrumental and concrete such as inserting a venous catheter and administering medication IV or positioning the patient on the stretcher and preventing injuries during transportation.

4. Discussion

The key findings in this study was that four qualitatively different roles of the SAN were identified and that these different ways of approaching the patients leads to consequences in terms of how the patients are assessed and different care delivered. The informants' perceptions of nursing in the AS were clearly generated from their perceptions of general nursing and they related their perceptions to their previous experience of being an RN in a hospital ward. Interestingly, general nursing was perceived as multifaceted and more differentiated than nursing in the AS. The SANs considered that nursing was mainly something performed in hospital wards and not so much in the AS.

It is often a major decision for patients to call an ambulance, and quite frequently persons other than the patient her/himself are involved in the decision-making process [31]. How nursing care is provided is determined by the competence and attitude of the SAN in addition to her/his perspective on the human being. The starting point for good nursing rests on the professional's expectation of the importance of the caring relationship [32]. In the results of our study, only the first two descriptive categories revealed that SANs were able to invite the patient into a caring relationship. In the two latter categories, the caring relationship was subject to conditions that were up to the patient to overcome by behaving properly or having the right illness. The nursing situation is defined and based on patient behavior, the nurse's reaction and action, where the immediate response is unique to each situation, and crucial for understanding the meaning of the patient's behavior. Orlando's [33] reflective nursing process reveals the relationship between patient and nurse, where the nurse's actions affect the patient and vice versa. Our findings clearly show that how the SAN acts and reacts is based on the patient's behavior, which confirms Orlando's theory.

The findings suggest that care provided by each of the four qualitatively different professional SAN approaches can vary, which might have consequences in terms of assessment, decision-making, treatment, and referral/non-referral to the hospital. In this study, it can be argued that the existing guidelines promote an attitude where patients who have the right condition should be given access to ambulance care. Can one therefore blame the two types of SAN who prioritize based on the patient's behavior and treatment as well as condition? The informants perceived that the organization and the framework did not support the practice of nursing. Nevertheless, there was a group of SANs who were clearly caring and strived to establish good care relationships as a basis for the nursing network. They succeeded in maintaining the moral bond of nursing despite poor conditions. If the context evolved to embrace nursing based on caring relationships, perhaps more SANs could develop their professional skills and thus meet the public's expectation of being taken seriously. The role of the SAN originates from being a member of a transport organization that provides basic care during transport from the patient's home to the hospital, despite the fact that the AS has moved from a traditional masculine "fire brigade culture" to a more egalitarian and gender balanced "healthcare culture" [23]. To meet the diversity of patients' needs and preferences within the AS, the organization must be prepared for and allow SANs to practice nursing care, as failure to do so will result in the emergence of a culture with a strong medical view of patients and absence of relevant interventions.

When the ambulance arrives at the scene the patient may feel relieved that help is at hand, especially if she/he made the decision to phone [31]. All patients expect to be taken seriously and treated with respect. When not taken seriously, the patient may doubt her/his own judgment and feel guilty and ashamed about bothering the AS [34]. Being treated disrespectfully and having to prove oneself worthy of care can adversely affect both present and future care. However, if the encounter is caring and the SAN responds to the patient and builds a partnership, the patient dares to surrender into the hands of the SAN, thus gaining increased confidence in the AS and healthcare in general.

Some patients do not expect to meet a SAN who makes an assessment, but only fast transportation to a hospital. If such patients encounter a SAN who adopts the approach "Nursing in the AS means establishing a caring relationship as a foundation for care" or "Nursing in the AS means delivering professional care based on experience and scientific evidence" the prerequisites for a good meeting are in place and the nursing process is likely to be handled correctly. However, if the patient instead

encounters a SAN who holds the view that “Nursing in the AS is for those who deserve it” or “Nursing in the AS is for those with the right condition” she/he has to qualify by having the “correct” diagnosis and possibly also behave in the “right” way for care. Patients who meet these requirements are entitled to good nursing. Some parallels can be drawn with Schuster [32], who identified three models for how nurses constitute themselves in the meeting with seriously ill patients. The “Method-Oriented Nurse” believes that she/he knows what the patient’s needs are and has a narrow perception of nursing focused on actions, which leads to the risk of the patient becoming a passive object. The “Neutral Nurse” distances her/himself from the patient by entering into a professional role, while the “Good Nurse” is characterized by the image of the nurse as a helper and donor. The “Good Nurse” is also altruistic and loves being the driving force. Based on the findings in our study, we argue that in order to provide good nursing care the SAN should see the whole person, be open, reflective, and focus on how illness is experienced by patients [35]. Furthermore, there is a need for an organizational improvement of the AS, including the development of holistic guidelines covering both the perspective of disease and illness and providing medical and nursing interventions.

Based on the findings, there is also room for a change in the curriculum of the Specialist Nursing Pre-hospital Emergency Care education. Nursing and nursing values are developed through education [36], which is also reflected in the SANs’ perceptions. One explanation for the almost dialectic way the SANs consider nursing in the AS can be an imbalance between medical, nursing, and contextual knowledge in the SAN education, where the main focus is on medical knowledge and the least on nursing [22]. In the study by Sjölin et al. [22], data were generated from 49 nursing and medical science courses in specialist nursing programs in prehospital care from different Universities in Sweden. Each university organizes its educational content into courses. The course content was described as medical, nursing, and contextual knowledge, with the main focus on medical knowledge and the least on nursing knowledge, despite the latter being the SANs’ area of competence. The Specialist Nursing Pre-hospital Emergency Care education consists of theoretical courses and clinical practice. The latter is important for acquiring the skills required to work professionally as a SAN. However, personal chemistry as well as the supervisor’s attitude and view of the work are factors that may affect the learning situation [37]. Treatment guidelines and the SAN education are based on the fact that the patients the SAN will encounter are critically ill or injured in accordance with a medical definition that does not take account of the patient’s own experience of illness. However, Hörberg, Lindström, Kalen, Scheja, and Vicente [38] described that nurses new to the AS felt well prepared to handle trauma and acute illness, but that the majority of the patients they encountered did not fit this template and that the guidelines did not cover all aspects of ambulance care.

In the present study, the SANs reported that barriers to nursing practice were the impression that they have no nursing guidelines to follow and that the nursing content in educational programs is limited. This is consistent with the study by Rosén, Persson, Rantala, and Behm [4] that explored the AS as experienced by current and former employees. The participants in the above-mentioned study also perceived that the AS guidelines were derived from a medical perspective and that the AS organization did not create the right prerequisites for the care they provide. The treatment guidelines focus on acute assignments, which in reality only constitute a small part of their work. It is obvious that SANs would benefit from clearer guidelines that include nursing aspects.

Strengths and Limitations

By using the phenomenographic method we gained knowledge about the variations in the SANs’ perceptions of nursing based on their work experience in the AS. In phenomenography the focus is on differences in human phenomena and the aim is to describe these differences in terms of the conception of the surrounding world [28]. Accordingly, the outcome categories from a phenomenographic analysis constitute peoples’ various ways of thinking about their experiences [27]. The outcome space is “born” in the moment that the researcher reads the narratives, thus it grows out of the empirical interview material. The category system is the product of the researcher’s analysis of a particular material.

Phenomenography was developed in the field of education (where learning is seen as a change in the learner's ability to experience a phenomenon) to answer certain questions about thinking and learning [26]. Therefore, the results of phenomenographic studies have implications for education, but have also been found to be useful in nursing research [27], which we have demonstrated and argued in this study.

Regarding methodological quality, this study adheres to the four quality criteria for ensuring trustworthiness in qualitative research developed by Lincoln and Guba [39]. The relatively short duration of the interviews is a possible threat to credibility. No new perceptions emerged after eleven interviews, which agrees with Larsson and Knutsson-Holmström [40], who stated that new perceptions rarely emerge after 10–12 interviews. However, to ensure sufficient data and to compensate for some of the shorter interviews we performed in a total 19 interviews. Longer interviews might have increased the credibility of the study, but the number of different perceptions that emerged shows that the data were considered sufficient. The presentation of all these perceptions enhances the transparency of the analysis. While dependability may have been influenced by the fact that a person responsible for education within the AS context approached the potential participants, the varied and qualitatively different perceptions indicate that this did not constitute a limitation. Confirmability was ensured as the participants described perceptions of nursing in the AS context, which corresponded to the aim of the study, thus providing rich and relevant data that were considered useful. The profound clinical pre-understanding of two of the authors gained from working as SANs in the AS for many years could have had an impact on the interpretation and analysis. However, they did not work together with the study participants. Furthermore, there was an open dialogue with the second and the third author who have no clinical experience of this context but extensive knowledge of qualitative research, which helped reduce potential misinterpretation and ensured the confirmability and trustworthiness of the study. Finally, transferability can be considered high as the participants represent catchment areas comprising both rural and urban settings, as well as diversity in terms of socio-economic status. However, perceptions of nursing in the AS are most likely dependent on factors such as the workplace culture and the attitude of management, thus limiting transferability to contexts that differ from the specific ambulance context in the study.

5. Conclusions

There is a very wide variety of perceptions of ambulance nursing within the Swedish AS. Seven descriptive categories emerged, detailing the variations in how the SANs perceive, understand, and conceptualize the phenomenon of nursing in the AS. Four qualitatively different professional SAN approaches exist in ambulance care, presumably affecting the assessment and judgment of the patients' condition, while three categories outline the perceived barriers to assuming their role and responsibility as SANs. An in-depth understanding of SANs' perceptions of their nursing experiences is essential in order to properly implement the nursing process both in the Specialist Nursing Pre-hospital Emergency Care education curriculum and within clinical practice. There is a need for the development and implementation of nursing guidelines in the AS.

These findings raise questions about the role of SANs in the Swedish AS and the consequences of the four different professional profiles. The results suggest that SANs' knowledge of what nursing is and what it means to the patient is somewhat lacking. The results should have an impact on the in future development of the SAN educational curriculum. Knowledge of general nursing and in particular contextual nursing should be highlighted and strengthened both in the education to become a SAN and also in AS internal training. We recommend professional meetings in each AS setting in order to reflect on, process, and delineate the essence of nursing and its implications for nursing practice within the AS with the help of the findings of this study.

Author Contributions: Conceptualization, L.F. and A.R.; methodology, L.F., A.F., A.K., and A.R.; validation, L.F., A.F., A.K., and A.R.; formal analysis, L.F., A.F., and A.R.; investigation, A.R.; resources, A.F.; data curation, L.F., A.F., A.K., and A.R.; writing—original draft preparation, L.F.; writing—review and editing, L.F., A.F., A.K., and A.R.; visualization, L.F.; supervision, A.F., A.K., and A.R.; project administration, A.F.; funding acquisition, A.F. All authors have read and agreed to the published version of the manuscript.

Funding: This study received no grant from any funding agency in the public, commercial, or non-profit sectors.

Acknowledgments: The authors would like to thank all who participated in this study. We also wish to thank the Emergency Department at Helsingborg General Hospital for their support. We acknowledge Carolin Hjaltesdotter and Lina Haglund who facilitated the data collection.

Conflicts of Interest: The authors declare no conflicts of interest.

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Study II





Contents lists available at ScienceDirect

International Emergency Nursing

journal homepage: www.elsevier.com/locate/aaen

Inequalities and short-term outcome among patients assessed as non-urgent in a Swedish ambulance service setting

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ARTICLE INFO

Keywords:

Ambulance service
Emergency medical services
Non-conveyance
Nursing assessment
Pre-hospital care

ABSTRACT

Background: Within the ambulance service, assessment and referral of patients, especially those with non-urgent conditions, is a difficult and complicated task. Studies indicate that 12 to 20 percent of all patients are subjected to non-conveyance and discharged at the scene. There is lack of knowledge of what characterizes conveyed and non-conveyed patients. The aim of this study was to explore non-urgent patients who are conveyed or not conveyed to hospital and the short-term outcome of non-conveyance in a Swedish Ambulance Service setting.

Methods: This study has a descriptive, cross-sectional design. All patients who were prioritized as non-urgent were eligible for the study and 1,048 patients were followed-up in an administrative data system that stores information about the patients' trajectory in both primary and hospital care.

Results: More women than men were subjected to non-conveyance and most of the non-conveyed patients were left at home out-of-hours. 53% sought care again within 72 h. A large proportion of the non-conveyed patients were assessed as having unspecific symptoms.

Conclusions: There are prominent gender differences in the context of non-conveyance where unspecific symptoms seem to be the main reason for being left at home. As many of the non-conveyed patients who did not receive any advice about further investigation or intervention sought care again within 72 h, the assessments may be insufficient or inaccurate.

1. Background

The basic assumption behind this study is that within the ambulance service (AS), assessment and referrals of patients, especially those with non-urgent conditions, is a difficult and complicated task as it involves the patient's life world, behaviour and reactions (physical or mental) to the actual condition. One part of the assessment is deciding who has an urgent, time critical or a non-urgent medical condition, while at the same time being aware that the reason for summoning the ambulance might not be a medical problem at all, but a social one or due to lack of self-care capacity or self-management skills [1]. The rationale for this study is to elucidate the referral patterns as a possible result of the

specialist ambulance nurse's (SAN) assessment process for non-urgent patients. There are many reasons why ambulance transport is requested, even though it might later be deemed medically unnecessary. When the SAN meets a patient in their home or at an accident site, she/he must be open to and gather all information about and from the patient [2,3]. The assessment made by the SAN may have consequences for the patient in the form of incorrect treatment or choice of care level. Decisions about the level of care can be perceived as difficult after only a short meeting with the patient [4]. If the SAN decides that Accident & Emergency department (A&E) attendance is not necessary, the patient can be left at home or referred to another healthcare facility [5]. Ambulance clinicians (AC) were reasonably accurate when predicting the likelihood of

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<https://doi.org/10.1016/j.ienj.2021.101018>

Received 12 September 2020; Received in revised form 7 May 2021; Accepted 20 May 2021

Available online 17 June 2021

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admission of the patients transported [6].

Guidelines can support AC decision making [4,7]. However, care must be taken to ensure safe practice and that guidelines are not used to legitimise poor practice. Furthermore, it has been found that AS organisations do not create the right prerequisites for the care they provide, hence there is no support for dealing with non-urgent patients because treatment guidelines focus on acute assignments [4].

When exploring the outcome of patient conveyance or non-conveyance, patients who were denied transport were more likely to suffer adverse outcomes [8–10]. It has been demonstrated that a large proportion of patients who were initially assessed as non-urgent by the AS and consequently discharged at the scene, were later diagnosed with an acute illness, leading to delayed medical interventions [11]. In Sweden, approximately one-third of patients were categorized as non-urgent by ACs [12] and it was reported that 16% of patients assessed by ACs could have turned to primary care instead [13]. Similarly, in the Netherlands, where ambulances are staffed with registered nurse (RN), 20.4% of the patients were non-conveyed [14]. Not admitting patients to the A&E might lead to consequences [15], e.g. 37% of the patients who were left at the scene by ACs sought emergency care again within 24 h and 13% were admitted [15]. Patient safety within the AS is likely to be compromised by poor clinical reasoning and inadequate decision-making, as it is suggested that the undertriage rate is between 9% and 29% due to ACs' decisions about the medical necessity of ambulance transport [16]. However, it is argued that patients now request ambulance transport for more trivial symptoms than was previously the case and that the number of patients assessed as not needing emergency ambulance care is increasing [17–19].

Based on previous research and due to the lack of guidelines regarding the assessment of non-urgent patients, it is important to analyse current referral patterns and short-term outcomes for non-urgent patients as a foundation for the future development of guidelines. The referral patterns stem from the nursing encounter between the SAN and the patient and the assessment performed by the SAN onsite.

2. Aim

The aim of this study was to explore non-urgent patients who are conveyed or not conveyed to hospital and the short-term outcome of non-conveyance in a Swedish Ambulance Service setting.

3. Methods

3.1. The Swedish ambulance service context and the study setting

This study has a descriptive, cross-sectional design and is part of a larger research project that took place from 15th. May 2016 – 31st. May 2017 aimed at increasing collaboration between the AS, A&E and primary health care in order to encourage patients to present at the most appropriate level of care. Data were collected in the southernmost part of Sweden, where the AS catchment area contained 250,000 inhabitants. During this period there were 45,121 ambulance missions in the catchment area, of which 23,982 were deemed non urgent. Depending on the time of day and season there were 8–12 ambulances on call. There were at least eight ambulances in service out-of-hours, 11 ambulances during the day/in the daytime, with an additional unit 24/7 from June to August.

According to Swedish legislation, at least one of the two ACs in an ambulance team must be a RN. The ACs often consist of one RN specialist trained in prehospital care (i.e., a SAN) and one emergency medical technician (EMT) or another RN [3]. The assessment starts in the ambulance on the way to the patient, when an operator or nurse at the emergency medical dispatch centre (EMDC) has assessed the patient by phone and sent brief details of the case in the form of a short text with the related priority to the ACs [2]. When the SAN then meets the patient, the team will quickly determine if the patient is or is not critically ill or

injured [20]. The SAN is dependent on the cooperation of the patient and sometimes the patient's significant other to obtain a full picture of what has happened and the patient's medical condition [2]. Patients are prioritized by means of the Rapid Emergency Triage and Treatment system (RETTS), which is based on Vital Signs (VS) and the chief complaint (flow charts entitled Emergency Symptoms and Signs, ESS). The ESS codes contain some 58 algorithms (2016 version) with the most common chief complaints. The degree of urgency among both the causes (ESS) and VS determines the priority level, which in the prehospital context contains four priority levels: red, orange, yellow and green, from highest to lowest in descending order (Table 1) [21,22]. Patients prioritized as yellow or green are categorized as non-urgent and the SAN can consider another level of care for them such as self-care, the health care centre (HCC) or home visits by the regional general practitioner or the A&E in accordance with local directives. The patient's history and vital signs, chief complaints, symptoms and signs (ESS) combined with the SAN's knowledge, critical thinking, experience, intuition, treatment guidelines, local directives and triage tools form the basis for the SAN's assessment on which the decision about the appropriate level of care rests [23].

3.2. Participants

All patients prioritized as yellow or green in accordance with the RETTS were eligible for the study and comprised a 5.5% cluster sample from the larger research project. Thus, of the 23,982 eligible patients, 1,324 were included, see Fig. 1. Patients who were transported from or between hospitals, by appointment or aged under 18 years were excluded.

3.3. Data collection

Data for this study were collected in two steps. Firstly, the AS within the study setting provided information about the patient, i.e., date of birth, index date, assessment prioritization in accordance with the RETTS (ESS and VS) as well as the level of care to which the patient was referred (i.e., A&E, HCC or if the patient was left at home) and time of day. When a decision was made that subjected the patient to non-conveyance without further investigation (i.e., stay at home and/or at the accident scene), one of three boxes had to be ticked by the SAN; 1) no need for care, 2) did not want care or 3) care intervention on site/self-care advice. The latter includes e.g., dressing wounds, providing advice related to pain medication or when to present at e.g., A&E or HCC by own means/ambulance if the condition worsens or does not improve. Patient consents were collected before enrolled in the study (Fig. 1). Secondly, all patients were followed-up in an administrative data system that stores information about the patients' trajectory in both primary and hospital care. The data were provided by an intermediary appointed by the data holder. In line with previous studies [9,24,25], a time frame of 72 h was chosen.

3.4. Data analysis

Descriptive statistics were used for demographics (age and sex), referral, triage, emergency signs and symptoms (primary diagnosis), revisits to healthcare within 72 h and hospital admissions. The Chi Square was applied to assess differences in proportions between patients who were referred to hospital and left at home. Differences between two unrelated groups of continuous variables, e.g., age, were assessed by Student's *t*-test and differences between more than two unrelated groups by ANOVA. All statistical analyses were conducted using IBM SPSS statistics 25. Statistical significance was assumed at a *p*-value of < 0.05.

3.5. Ethical considerations

Consent, confidentiality, utility and information were taken into

Table 1
Cut-off levels due to vital signs (VS), in accordance with RETTS®.

	Method	Red	Orange	Yellow	Green
A = airway	Inspection	Airway comprised	Not in use	Not in use	Not in use
B = respiration	RR and POX %	> 30 or < 8/ min < 90% with oxygen	> 25/min or < 90% without oxygen	< 25/min or 91-95% without oxygen	9-25/min and > 95% without oxygen
C = circulation	HR and BP	> 130/min or < 90 mm Hg SBP	> 120 or < 40/min	> 110 or < 50/min	51 – 109/min
D = disability	RLS	> 3 or ongoing seizure	2-3	Confusion	Alert
E = exposure	Body temperature	Not in use	> 41 °C or < 35 °C	38.5 – 41 °C	35.1 – 38.4 °C

RR = respiratory rate; POX = pulse oximetry; HR = heart rate; BP = blood pressure; SBP = systolic blood pressure; RLS = reaction level scale (RLS is the Swedish Reaction Level Scale 85, and RLS 2 – 3 is comparable with GCS 8 – 12)

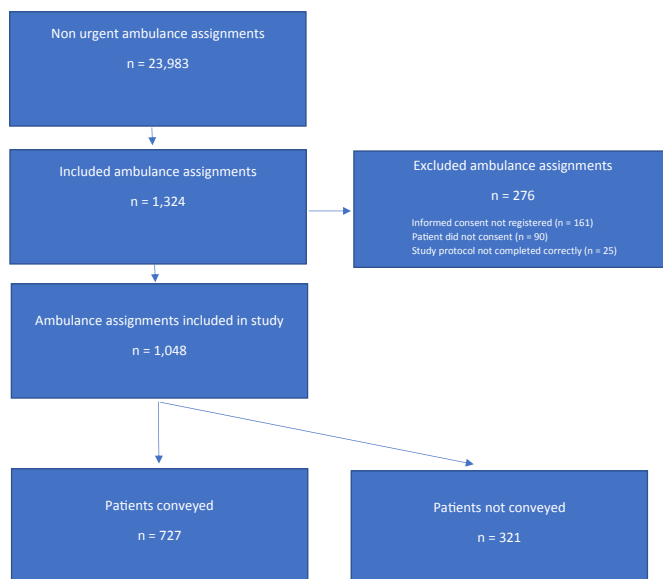


Fig. 1. Flow chart.

account in line with the Declaration of Helsinki [26] and the Swedish ethical protocol and legislation (SFS 2003:460). The Regional Ethics Board of Lund, Sweden, approved the study (No. 2016/70). We also received permission to use the administrative system from the county councils mandatory ethics board. All participants, i.e., adults ≥ 18 years old, have given their written informed consent.

4. Results

4.1. Characteristics of conveyed and non-conveyed patients

As outlined in Fig. 1, a total of 1,048 patients were included. Significantly more women, 57.4% ($n = 602$) were enrolled ($p < .001$) compared to men, 42.6% ($n = 446$). Descriptive patient characteristics are presented in Table 2. The mean age of the cohort was 68 years (SD 20.8, min 18 years, max 103 years), with no age differences between the sexes ($p = .532$). Of the 69.4% ($n = 727$) of patients conveyed in the ambulance, 723 were brought to the A&E and four (4) to an HCC. The age differed ($p = .008$) between the patients who were conveyed (mean

69 years) and not conveyed (mean 65 years). The main complaints were abdominal pain, unspecific symptoms and chest pain followed by vertigo and respiratory disorders. However, there were some differences in the main complaints between conveyed and non-conveyed patients, as depicted in Table 3. There were significantly ($p = .001$) more patients assessed and triaged as yellow who were conveyed to the A&E (86.8%) than in the non-conveyed group. However, almost 60% of the non-conveyed patients were also assessed as yellow (Table 2). The time of contact with the AS differed among the conveyed patients, who were evenly distributed between daytime and out-of-hours (5 pm to 7 am on weekdays and all day at weekends and on bank holidays), while most of the non-conveyed patients (61.4%) were assessed by the AS out-of-hours ($p = <0.001$).

There were no differences in proportions between the sexes regarding conveyed or non-conveyed patients, but in the non-conveyed group there were more women than men ($p = .001$). Furthermore, there was no significant difference in age between the sexes in the two groups ($p = .167$).

The 321 non-conveyed patients were divided into four groups as

Table 2
Patient characteristics of the total population divided into conveyed and non-conveyed patients.

	Total population n = 1,048	Conveyed n = 727	Non-conveyed n = 321	P
Age – mean (SD)				
Year	68 (20.8)	69 (19.8)	65 (20.8)	0.008
Gender – n (%)				
Female	602 (57.4)	413 (56.8)	189 (58.9)	0.532
VS triage level in accordance with RETTS® – n (%)				
Yellow				
Green	254 (24.2)	199 (27.4)	55 (17.1)	
Green	794 (75.8)	528 (72.6)	266 (82.9)	< 0.001
ESS triage level in accordance with RETTS® – n (%)				
Yellow				
Green	763 (72.8)	601 (82.7)	162 (50.5)	
Green	285 (27.2)	126 (17.3)	159 (49.5)	< 0.001
Overall triage level in accordance with RETTS® – n (%)				
Yellow				
Green	821 (78.3)	631 (86.8)	190 (59.2)	
Green	227 (21.7)	96 (13.2)	131 (40.8)	< 0.001
Time of call – n (%)				
Daytime	494 (47.1)	370 (50.9)	124 (38.6)	
Out-of-hours	554 (52.9)	357 (49.1)	197 (61.4)	< 0.001

VS: Vital Sign, ESS: Emergency Symptoms and Signs

Table 3
Assessed Emergency Signs and Symptoms (ESS) algorithms in accordance with RETTS®.

Assessed ESS in accordance with RETTS®	Conveyed n = 727 n - (%)	Non-conveyed n = 321 n - (%)
Abdominal pain	97 (13.3)	33 (10.3)
Chest pain	86 (11.8)	19 (5.9)
Vertigo	77 (10.6)	22 (6.9)
Respiratory disorders	60 (8.3)	36 (11.2)
Unspecific symptoms	58 (8.0)	62 (19.3)
Syncope	55 (7.6)	12 (3.7)
Extremity problem	37 (5.1)	11 (3.4)
Injury lower extremity	31 (4.3)	12 (3.7)
Back pain	30 (4.1)	21 (6.5)
Head injury	29 (4.0)	7 (2.2)
Infection/Fever	27 (3.7)	13 (4.0)
Stroke	26 (3.6)	2 (0.6)
Arrhythmia	19 (2.6)	9 (2.8)
Thorax injury	15 (2.1)	3 (0.9)
Headache	10 (1.4)	9 (2.8)
Other ESS/complaints	70 (9.6)	50 (15.8)

shown in Table 4. Fifty-five percent (n = 177) of the patients were left at home with no further investigation. The ACs referred 16.2% (n = 52) of the patients to the A&E, 23.7% (n = 76) to the HCC and 5% (n = 16) were advised to be seen by a physician at home (Table 4).

The most common ESS codes in non-conveyed patients were unspecific symptoms (19.3%), respiratory disorders (11.2%) and abdominal pain (10.3%) with some variation between the groups (Table 4). The patients in the group who were left at home and advised to be seen by a physician were older than the other patients, but there were no significant age differences between the four groups (p = .092). There was also no significant difference (p = .487) in the proportions between the sexes in the four different groups. In our data, we noticed a difference in the proportions of how the patients were triaged based on the RETTS (Table 4). However, in the group of patients who were left at home with no further investigations, there was an almost equal number classified as yellow (50.3%) and green (49.7%). Among those left at home, 13% had abnormal vital signs. According to SAN records, the reasons for not conveying patients were that 49.7% received care interventions on site/self-care advice, 26% were judged not to require care and 18.6% were recorded as refusing transport. Information about the grounds for the SANs' judgement was missing in 5.6% of the records.

4.2. Non-conveyed patients who sought renewed contact within 72 h

The characteristics of those who sought further care again within 72 h are presented in Table 4. Of the 321 non-conveyed patients, 170 (52.96%) sought care again within 72 h due to unspecific symptoms, respiratory disorders or persistent vertigo (Table 5). Significantly (p = .001) more women (64.7%) than men (35.5%) sought care again within this period. The patients in the group who sought care again were significantly older (mean 68 years) (p = .006) than those who were not conveyed and did not seek care again (mean 62 years). There was a significant difference (p = .046) in the number of patients not conveyed related to the time of day, where 42.4% (n = 72) were not conveyed in the daytime, while 57.6% (n = 92) were not conveyed out-of-hours. Of the non-conveyed patients with no further investigation, 32.8% (n = 58) sought care again within 72 h. Of those, 19% (n = 23) turned directly to the A&E and nearly 40% (n = 23) requested an ambulance again. In this group 25.9% (n = 15) were admitted to hospital. Of the non-conveyed patients who went to the A&E on their own, 82.7% (n = 52) did so within 72 h. Of these patients, 25.6% (n = 11) were admitted to hospital. Patients referred to their local HCC (n = 76) did not follow the advice to the same extent, as only 69.7% contacted the HCC. Everyone who was advised to see the regional general practitioner had a new contact with healthcare within 72 h.

5. Discussion

In this study we explored the characteristics of non-urgent patients who were conveyed to the A&E or subjected to non-conveyance and the main findings were that more women than men were subjected to non-conveyance, more than half of the non-conveyed patients (53%) sought care again within 72 h and the patients who sought care again were older than those who did not seek further care. A large proportion (59.2%) of non-conveyed patients were assessed as yellow, while the 13.2% assessed as green were conveyed to the A&E, more women than men sought care within 72 h and a large proportion of those non-conveyed were assessed as having unspecific symptoms.

The finding that more women (58.9%) than men were non-conveyed raises questions. Is it possible that an inherent gender bias could have affected the SANs' assessment and judgement? Or could it be that women were expected to be more perceptive to self-care recommendations than men? An argument against the latter is the fact that most of the patients who sought care again within three days were women.

Table 4
Characteristics divided by reason for non-conveyance.

	Non-conveyed with no further investigations	Referred to the A & E by own means	Referred to HCC by own means	Referred to be seen by a general practitioner at home	p
N (%)	177 (55.1)	52 (16.2)	76 (23.7)	16 (5.0)	
Years (SD)	65.10 (20.690)	68.65 (20.479)	63.87 (21.269)	77 (19.100)	0.092
Female n (%)	100 (56.5)	30 (57.7)	47 (61.8)	12 (75)	0.487
Male n (%)	77 (43.5)	22 (42.3)	29 (38.2)	4 (25)	
Daytime n (%)	63 (35.6)	25 (48.1)	27 (35.5)	9 (56.3)	0.168
Out-of- hours n (%)	114 (64.4)	27 (51.9)	49 (64.5)	7 (43.8)	
VS triage level in accordance with RETTS® – n (%)					0.003
Yellow	23(13.0)	14 (26.9)	11 (14.5)	7 (43.8)	
Green	154 (87.0)	38 (73.1)	65 (85.5)	9 (56.3)	
ESS triage level in accordance with RETTS® – n (%)					0.008
Yellow					
Green	76 (42.9)	33 (63.5)	41 (53.9)	12 (75.0)	
	101 (57.1)	19 (36.5)	35 (46.1)	4 (25.0)	
Final triage level in accordance with RETTS® – n (%)					<0.001
Yellow					
Green	89 (50.3)	41 (78.8)	46 (60.5)	14 (87.5)	
	88 (49.7)	11 (21.2)	30 (39.5)	2 (12.5)	
Assessed ESS in accordance with RETTS® (The three most common) ESS - n (%)	Unspecific symptoms 38 (21.5) Abdominal pain 19 (10.7) Respiratory disorders 17 (9.6)	Unspecific symptoms 8 (15.4) Abdominal pain 7 (13.5) Vertigo 4 (7.7) Injury lower extremity 4 (7.7)	Respiratory disorders 13 (17.1) Vertigo 12 (15.8) Unspecific symptoms 10 (13.2)	Unspecific symptoms 6 (37.5) Infection/Fever 3 (18.8) Respiratory disorders 3 (18.8)	
Reasons for non-conveyance –n (%)					
Care intervention on site/self-care advice					
No need of care		non		3 (18.8)	
Did not want care	88 (49.7)		13 (17.1)		
Not specified				1 (6.3)	
	46 (26.0)	non	6 (7.9)	3 (18.8)	
	33 (18.6)	non			
	10 (5.6)	52 (100)	5 (6.6)	9 (56.3)	
Sought care again within 72 h n (%)	58(32.8)	43 (82.7)	52 (68.4) 53 (69.7)	16 (100)	

VS: Vital Sign, ESS: Emergency Symptoms and Signs, HCC: Health Care Centre.

Furthermore, a large proportion of those judged to have unspecific symptoms were women, suggesting that women's symptoms might not have been taken seriously. It is well known that women communicate their symptoms in a different way and that a gender bias exists among healthcare professionals in general [27], as well as in the AS [28,29], where women are considered more querulous than men. According to Michael et al., [30], women are less likely than men to receive pre-hospital analgesia for isolated extremity injuries. Patients' wishes and communication behaviour are other possible reasons for the gender differences in the medical process [31,32]. For instance, it has been argued that men describe their symptoms in a straightforward and demanding way, while women often give vague symptom descriptions and hesitate to accept potentially dangerous treatment measures such as surgery [33,34]. It has been shown that boys and men are taught to be tough, tolerate pain and sustain painful experiences, while girls and women are socialised to be sensitive, careful and to verbalise discomfort [35]. Thus, we suggest that gender bias should be discussed on a regular basis within the AS, as their assessments are of vital and often lifesaving importance. One concern is absence of evidence regarding gender differences and self-care capacity, including the lack of algorithms or

guidelines for pre-hospital assessment of self-care, which constitutes a possible barrier to systematic assessments of deficits in or resources for self-care or activities of daily life.

More than 50% of those who were not conveyed sought care again within 72 h. Of those, a worrying 21% were admitted to in-patient care. In comparison, previous studies revealed that 4.5 – 46% were hospitalised [9,36]. Our understanding is that the assessment might have been insufficient or that the interventions were not targeted and specific enough to meet the patient's holistic need. Another possibility is that either the patient did not qualify for emergency care according to the RETTS system [37] or the SAN wanted to prevent over-crowding in the A&E. Against this is the fact that 13.2% who were triaged as green were conveyed, while a large proportion (59.2%) of those not conveyed were triaged as yellow. This finding raises questions regarding the distribution. However, it could be argued that when the SAN identifies something of concern in the patient a conscious and well-balanced choice might be not to follow the RETTS system. Höglund et al. [38] argue that patients are conveyed to the A&E when the SAN doubts her/his assessment, distrusts the guidelines or when there is a risk that the assessment tools lack sensitivity for identifying a decline in the patient's

Table 5
Non-conveyed patients with renewed healthcare contact within 72 h (n = 170).

	Non-conveyed with no further investigations	Referred to the A&E by own means	Referred to HCC by own means	Referred to be seen by a general practitioner at home	p
N (%)	58 (34.1)	43 (25.3)	53 (31.2)	16 (9.4)	
Years (SD)	66.29 (19.804)	69.14 (20.042)	69.3 (19.144)	77 (19.100)	0.289
Female n (%)	36 (62.1)	26 (60.5)	36 (67.9)	12 (75)	0.683
Male n (%)	22 (37.9)	17 (39.5)	17 (32.1)	4 (25)	
Daytime n (%)	20 (34.5)	20 (46.5)	23 (43.4)	9 (56.3)	0.382
Out-of-hours n (%)	38 (65.5)	23 (53.5)	30 (56.6)	7 (43.8)	
Initially assessed VS triage level in accordance with RETTS [®] - n (%)					0.090
Yellow					
Green	9 (15.5)	11 (25.6)	10 (18.9)	7 (43.8)	
Initially assessed ESS triage level in accordance with RETTS [®] - n (%)	49 (84.5)	32 (74.4)	43 (81.1)	9 (53.6)	0.048
Yellow					
Green					
	24 (41.4)	27 (62.8)	28 (52.8)	12 (75)	
Initially assessed final triage level in accordance with RETTS [®] - n (%)	34 (58.6)	16 (37.2)	25 (47.2)	4 (25)	0.004
Yellow					
Green					
	29 (50)	34 (79.1)	33 (62.3)	14 (87.5)	
Initially assessed ESS in accordance with RETTS [®] (The three most common) ESS - n (%)	29 (50)	9 (20.9)	30 (37.7)	2 (12.5)	
	Unspecific symptoms 13 (22.4)	Unspecific symptoms 8 (18.6)	Respiratory disorders 8 (15.1)	Unspecific symptoms 6 (37.5)	
	Respiratory disorders 8 (13.8)	Abdominal pain 5 (11.6)	Vertigo 8 (15.1)	Respiratory disorders 3 (18.8)	
	Abdominal pain 6 (10.3)	Vertigo 4 (9.3)	Unspecific symptoms 7 (13.2)	Infection/Fever 3 (18.8)	
Reasons for non-conveyance -n (%)					
Care intervention on site/self-care advice					
No need of care					
Did not want care					
Not specified	25 (43.1)	Non	8 (15.1)	3 (18.8)	
	20 (34.5)	non	3 (5.7)	1 (6.3)	
	8 (13.8)	non	3 (5.7)	3 (18.8)	
	5 (8.6)		39 (73.6)	9 (56.3)	
Where did patients seek help again within 72 h? n (%)		43 (100)			
A&E					
New ambulance call	11 (20.8)	38 (88.4)	4 (7.5)	Non	
HCC out-of-hours	23 (39.7)	Non	7 (13.2)	1 (6.3)	
HCC	1 (1.7)	1 (2.3)	6 (11.3)	Non	
Psychiatric clinic	17 (29.3)	3 (7.0)	35 (66.0)	Non	
Doctor at home	2 (3.4)	Non	Non	Non	
Other	1 (1.7)	Non	1 (1.9)	15 (93.8)	
	3 (5.2)	1 (2.3)	Non	Non	
Admitted- n (%)	15 (25.9)	11 (25.6)	5 (9.4)	4(25)	

VS: Vital Sign, ESS: Emergency Symptoms and Signs.

health status. According to Backman et al. [39], one of the reasons behind non-conveyance is saving the patient from a stay at the A&E, which is considered a good deed. A third possible explanation might be insecurity regarding how to utilize the RETTS as shown by Wireklint et al. [40], where the RN had profound difficulties differentiating between stable and unstable patients (i.e., yellow or orange), but also between all four triage levels, leading to patient safety risks.

Almost 65% of the patients with renewed contact within 72 h were women with mainly unspecific symptoms, respiratory disorders or vertigo. The RETTS assessment of "unspecific symptoms" is challenging. A recently published study involving AS patients with unspecific symptoms revealed that more than one-third had a serious condition [41]. No

guidelines exist for how to assess illness by means of the patients' subjective experience and interpretation of their symptoms. It is necessary to listen to the patient's narrative and personal modes of explaining illness when assessing illness-related symptoms and to provide the time necessary to establish a trusting relationship, as otherwise important information might be overlooked [42,43]. The motives behind seeking care again are presumably complex and warrant further research. However, what we do know is that the importance of being taken seriously should not be underestimated [5].

It was obvious that most of the patients were non-conveyed out-of-hours, which is confirmed by a previous study in the same context [44]. A widespread problem within the AS is that when deciding about non-

conveyance, the SANs wish to avoid the responsibility, workload and the need to spend extra time on the assignment. However, they also wish to prevent further contact with healthcare and complaints from patients [38], suggesting that patients should be conveyed frequently, even out-of-hours. Perhaps tiredness out-of-hours affects the SANs' judgment, leading to a preference for non-conveyance?

The basic needs of human beings involve an understanding of challenges and opportunities in everyday life [45,46]. Many patients are dissatisfied due to inadequate or lack of information about their health condition, planned treatment and that decisions are made without involving them or their significant others [5,47]. When the nurse is mainly focused on the disease and its treatment instead of the patient's illness experience and total life situation it constitutes a possible barrier to communication and subsequently assessment [37]. In addition, it is necessary to know a little about the patient's regular self-care strategies and repertoire in order to provide person-centred self-care advice. We do not know if the SANs recorded what kind of self-care advice they provided. Thus, it is impossible to evaluate the outcome in terms of new referrals or ability to stay at home.

6. Limitations

Only a few studies have evaluated patterns of revisits among non-conveyed patients. The relatively small sample might affect the generalizability. However, we argue that it is possible to draw several conclusions based on a sample of more than one thousand participants and moreover, our result is consistent with the limited amount of previous research. A strength is that we obtained informed consent from all the patients included in the study. However, a limitation is that a relatively large group (20.8%) of the sample were excluded due missing information concerning informed consent. It would have been possible to include more patients, but as informed consent is an important ethical condition of research, we could not include patients where the SAN forgot to collect the consent form. In addition, a limitation is that we did not ask for information about ethnicity, which we expected would constitute a barrier to informed consent. In future research this aspect should be included, as well as the patients triaged as red or orange in order to obtain a more representative study population.

7. Conclusions

In conclusion, there are prominent gender differences in the context of non-conveyance and unspecific symptoms seem to be a dominant reason for being left at home. Many of the non-conveyed patients deemed to have no need for further investigation or intervention sought care again within 72 h. Not all clinical presentations can be made to correspond to an algorithm. However, it cannot be ruled out that the assessments performed by the SANs that formed a basis for non-conveyance might be insufficient or inaccurate, suggesting a need for new and extended guidelines involving nursing, psychosocial aspects and self-care demands.

Ethical statement

The Regional Ethics Review Board of Lund, Sweden, approved the study (No. 2016/70). We also sought and received permission from the county councils mandatory ethics board (Samråd KVB, Region Skåne) to use the administrative system. All participants provided their informed consent to be included in the study.

Funding

This research received no external funding.

CRedit authorship contribution statement

Lena Forsell: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing - original draft, Writing - review & editing, Visualization. **Anna Forsberg:** Methodology, Validation, Formal analysis, Resources, Writing - review & editing, Supervision, Project administration, Funding acquisition. **Annika Kisch:** Methodology, Formal analysis, Writing - review & editing, Supervision. **Andreas Rantala:** Conceptualization, Methodology, Formal analysis, Investigation, Writing - review & editing, Visualization, Supervision.

Declaration of Competing Interest

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

Acknowledgements

We are grateful to the participants who took part in this research and would like to thank the Emergency Department at Helsingborg General Hospital, Sweden, for their support.

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