ORIGINAL ARTICLE

Emergency health care professionals' experiences of factors that influence care quality and safety

Mari Salminen-Tuomaala *[1], Päivi Leikkola[2], Eija Paavilainen[3]

[1] School of Health Care and Social Work, Seinäjoki University of Applied Sciences, Finland
[2] Seinäjoki Central Hospital, Finland
[3] School of Health Sciences, University of Tampere, South Ostrobothnia Hospital District, Finland

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ABSTRACT

Introduction: More research is required on care quality and patient safety, especially from the care provider perspective. Aims and objectives: The study describes factors that affect the quality of emergency care as experienced by nurses, paramedics, hospital and ambulance attendants and practical nurses in out-of-hospital emergency medical services.
Methods: Data were collected in October 2013 by semi-structured interviews (n = 15) in Finland and analysed using inductive content analysis.
Results: High quality emergency care is patient-centred, equal, professional, individualized and holistic. It encompasses the following areas: prompt emergency care on site; prevention of patient deterioration; individualized holistic care; arranging safe follow-up care; supporting the coping of patients and families and; securing the safety of patients and staff on site and in ambulance. The care quality care is affected by professionals' theoretical and practical competence and personal qualities, by the availability of equipment, co-operation, contextual factors, personnel policy and by the outcome of consultation with a doctor.
Conclusions: Emergency care staff will be expected to provide increasingly extensive, holistic care on site. All stages of the care pathway should be evaluated and comparative international studies conducted to detect development needs. Relevance to clinical practice: Consistent practices and instructions are indicated. Management needs to promote staff coping and motivation by means of education, focusing on the care of older patients and clients affected by multiple diseases, and on psychosocial and social problems of people affected by alcoholism or social exclusion.

Key Words: Emergency care, Quality of care, Emergency health care professional, Out-of-hospital emergency care

1. INTRODUCTION

Emergency medical services (EMS) and out-of hospital care are key areas in health services, providing urgent care for acutely ill or injured patients and transporting them to definitive care units. Developing the quality of emergency care is a current concern, both internationally and nationally. In Finland, the focus is on promoting patient safety, but few studies have so far been conducted on emergency care specifically.[1] In Finnish legislation,[2] emergency medical services are defined as a combination of out-of hospital services provided under the administration of hospital districts, mainly to assess patients' need for acute care and transfer to hospital. The Ministry of Social Affairs and Health Decree[3] further states that all risk management and safety planning in health and social service organizations must start with patients and with ensuring that they receive safe, high quality care.

*Correspondence: Mari Salminen-Tuomaala; Email: mari.salminen-tuomaala@seamk.fi; Address: School of Health Care and Social Work, Seinäjoki University of Applied Sciences, Finland.

A great number of recommendations exist, directed at improving the quality of health care. A national example is presented here: A Quality Manual published by the Association of Finnish Local and Regional Authorities lists four factors that are essential for the quality of health services; (1) quality of serving clients (patient-centredness and timeliness), (2) clinical quality (competence, patient safety), (3) quality of processes (smooth operation of services) and (4) effectiveness.[4]

Of these, patient safety is a critical component of quality in EMS.[4] Provision of patient-centred, individualized care can be seen as another central aspect of quality. For patients, individualized care has been shown to involve an experience of receiving support during care procedures.[5–7] Optimally, patient-centred, individualized care combines attention given to a number of factors; the clinical care situation, the patient's reactions, his or her individual life situation and potential and willingness to participate in decision-making concerning care.[6] It has also been pointed out that besides attending to the patient's unique needs at the right time, care professionals need to pay attention to the potential of the care context in seeking to help the patient.[8]

High quality emergency care is also equated with expert services, which meet patient needs while also taking into consideration the various stakeholders. Quality is seen to result from the care professionals' joint commitment to everything they undertake in order to help patients.[9] As in other countries, Finnish law requires that health care organizations follow evidence-based practices to ensure high quality outcomes.[10] In future, the development of clinical emergency services will rely on real-time electronic information about the patient's medical history.[11] Finally, one must also bear in mind that as part of their effort to promote patient safety as an important quality factor,[12–15] care providers need to look beyond the physical aspect of care. To be able to feel safe, patients also need support, provided by means of a communicative contact, in retaining their identity and regaining equilibrium after the acute incident.[16]

The quality of out-of hospital emergency care cannot be discussed without some idea about the challenges future is likely to bring. As in many other countries, Finland's population is ageing rapidly. An increasing number of emergency care patients will be older people with multiple illnesses. Additionally, fewer people are nowadays cared for in institutions, but continue living in their own homes. More often than before, emergency care professionals will encounter people in poor health. Guidelines on what kind of treatments to undertake will be required. Care professionals may occasionally need to consider whether or not to refrain from heavy treatments, but also, more commonly than earlier, they will be expected to administer holistic care on site. Competence in geriatric acute care will be very much sought after in future. Moreover, emergency care services may be the only contact that people affected by alcoholism, social exclusion or mental health problems have with health services. It is crucial that well-functioning co-operation networks are developed and maintained between primary health care, emergency social services, home nursing, substance abuse services and EMS.[1,17–19]

Besides the challenges brought on by a skewed age pyramid, professionals working in emergency health care services will have to take on a number of other complex tasks. Their work will take place in an increasingly international environment, in which structural changes are common in health and social care organizations. Creating networks of services will be necessary, although in Finland there is also a co-existing tendency to centralize emergency care services. Finally and importantly, in today's society, patients and their families have learnt to expect and demand individualized services.[11]

The existing research on EMS in Finland, conducted either from patient or care provider perspective, mainly discusses near-misses and adverse events as factors that affect the quality in emergency medicine.[7,20–23] More studies are needed from the perspective of emergency care professionals, to explore their conceptions and experiences of factors that contribute to the quality of out-of-hospital care that they provide. Their experiences will be valuable when seeking to detect risks and prevent human errors.[24,25] Studying care professionals' experiences of the work environment, equipment and factors that affect patient safety can also help to develop the quality of emergency care.[26]

Aims

The paper discusses factors that influence care quality and patient safety in out-of-hospital emergency care as experienced by emergency care professionals. The same factors are worth considering internationally. The study reveals development needs in the emergency care pathways that are interesting both nationally and internationally.

2. METHODS

2.1 Design

The purpose of the research was to describe factors that influence the quality and safety of patient care as experienced by emergency health care professionals, that is nurses, paramedics, hospital and ambulance attendants and practical nurses working in out-of-hospital emergency medical services. The terms emergency health care professional and emergency health care provider will be used throughout the

study to refer to this group of professionals. The research aims at producing new knowledge to be used in developing safe, high quality emergency care of patients further.

This study is a part of a larger project on the quality and safety of emergency medical services in one hospital district serving 200,000 inhabitants. The project aims at producing quantitative and qualitative research knowledge of factors that are associated with quality and patient safety in out-of-hospital emergency care. This article focuses on the care provider perspective. Eventually, the perspectives of patients, families and care providers will be incorporated. The overall quality project springs from a structural change in Finland in 2013, when the duty of organizing emergency medical services was transferred from individual municipalities to hospital districts run by joint municipal authorities.

A qualitative approach based on semi-structured interviews was selected for this study, because little earlier research exists on the quality of emergency medical services in Finland, especially from the care provider perspective.

The research tasks were: (1) What is high quality emergency care like as experienced by hospital emergency health care professionals? (2) What factors affect the quality of patient's emergency care as experienced by emergency health care professionals?

2.2 Data collection

Data were collected by semi-structured interviews ($n = 15$) in October 2013 within a single hospital district in Finland. The themes addressed in the interviews involved the quality of out-of hospital emergency care and safety, as experienced by the emergency health care professionals. All the interviewees were asked the same questions. They were requested to describe (1) what good quality is in out-of hospital emergency care, (2) what it consists of, and (3) what factors influence it.

The voluntary participants, selected by discretionary sampling out of a total of 200 employees working in out-of-hospital emergency services of the hospital district, consisted of five paramedics, five nurses, three hospital and ambulance attendants and two practical nurses. In Finland, nurses hold a Bachelor's degree or equivalent, whereas practical nurses and hospital and ambulance attendants (phased out as a certificate but still used in job descriptions) have completed a vocational upper secondary qualification. Paramedics are either nurses or practical nurses specialised in emergency care.

Ten out of these professionals work in the so-called advanced and five in the basic level of emergency care. In Finland, emergency care professionals can reach the advanced level by taking a test to demonstrate their ability to transport patients while maintaining patients' vital functions and to initiate advanced care (for example emergency medication, 12 channel ECG, management of resuscitation, intubation using light anaesthetic, external defibrillation). Advanced level emergency care professionals are competent in reaching a working diagnosis to choose appropriate action based on examinations and interview. They must also be able to manage medical rescue operations involving multiple patients. Basic level emergency care professionals, on the other hand, are competent in initiating basic life-saving procedures and in ensuring that the patient is not deteriorated during transportation.

Eligible participants had a minimum of two years' work experience in out-of-hospital emergency services. The interviews were conducted individually in a peaceful setting and taped with the participants' consent. The length of the interviews varied from 60 to 80 minutes.

2.3 Data analysis

The data were analysed using inductive content analysis.[27] The transcribed material amounted to 124 pages using Times New Roman, font size 12 and single spacing. First, the material was read through several times. All the sentences and units of thought that seemed to represent an answer to the research tasks were picked out and written down as reduced expressions, retaining the original form as far as possible. Expressions with the same or similar contents were grouped under the same sub-category. Sub-categories with similar contents were then combined into generic categories, which were further combined to form main categories. During the analysis, the investigator returned to the original data several times to ensure plausible interpretation.[28]

2.4 Trustworthiness and ethical considerations

The trustworthiness of the study will be discussed in terms of the following criteria suggested for the evaluation of qualitative research: credibility, transferability, dependability and confirmability.[29] First, the credibility of the results is ensured by ample, recently acquired interview material. Credibility is further increased by the fact that informants represented four professions; nurses, paramedics, hospital and ambulance attendants and practical nurses, who had a great deal of experience of emergency services and who could be regarded as experts in their field. Second, the transferability of the results is enhanced by the description of the informants' professional background and by a step-by-step description of the inductive content analysis. Third, to strengthen the dependability of the study, two other investigators were asked to evaluate the progress of the analysis from sub to generic to main categories. Fourth, the confirmability of the results is based on the illustration of contents by means of original

expressions. The excerpts provide a concrete illustration of the plausibility of the results. Finally, study trustworthiness is enhanced by the investigator's experience of working in acute nursing care, even though her preconceptions may also have affected trustworthiness negatively. Let it also be added that recent legal reforms and organizational change in emergency health care services may have shaped the emergency care professionals' experiences.

Research ethical guidelines were observed throughout the study.[30] Participation was voluntary and informants were asked for their consent, including the use of recorder. Before the onset of the study, participants were informed both orally and in writing about the purpose of the study, storage of tapes, transcription and the appropriate elimination of tapes and written material. Participants were aware that their anonymity was ensured and that they could withdraw at any time.

3. Results

3.1 High quality emergency care

Emergency health care professionals working in out-of-hospital services describe high quality emergency care in the following terms: It is patient-centred, equal, professional and individualized; it means encountering patients holistically and responding to their care needs; it preserves lives, protects patients and seeks to promote the safety and continuity of the patients' care.

3.2 Constituents of high quality emergency care

According to emergency health care professionals, high quality emergency care encompasses the following areas or constituents: providing prompt emergency care on site; preventing patient deterioration; providing individualized holistic care; arranging safe follow-up care; supporting the coping of patients and families and securing the safety of patients and staff on site as well as in the ambulance. The first area, prompt emergency care on site entails rapid assessment using the ABCDE Protocol and undertaking appropriate life-saving measures.

> "Good emergency care responds to the patient's needs, so that the patient gets the right kind of help at the right time."

The second constituent of high quality care, preventing patient deterioration, requires intensive patient observation to detect signs and symptoms of deteriorating status. The aim is to prevent complications and further breakdown of vital functions.

> "Good emergency care ensures that the patient's condition never, in any circumstances, deteriorates."

Third, individualized holistic care means encountering people in a patient-centred and professional manner. According to the interviewees, the essential task is to assess the patient's life situation and to respond to her or his physical, psychological and social care needs. Physical illness may not always be the problem; the patient may need comfort and help in facing loneliness or in dealing with fears. The interviewees stress that social and financial problems seem to be on the increase. Especially aged people, immigrants and people affected by alcoholism and social exclusion may have special psychosocial needs that need to be addressed urgently.

The fourth area mentioned by interviewees in this study is arranging safe follow-up care. This question needs to be addressed already on site, since not all patients need to be transported to hospital. In this context, emergency health care professionals find it necessary to assess risks to patient's coping and wellbeing and to examine the patient's and family's social situation. The risks may be connected either with the patient's physical or psychological health or with his or her living environment. Both psychosocial factors and the concrete environment need to be considered before it is possible to decide whether or not the patient can be safely left at home.

> "Some granny for example, if there is a decline in her general condition, when she is taken away for further care, she does not need to be alone at home and potential falls or worse things are avoided."

The fifth area brought up by emergency health care professionals is supporting the coping of patients and families. This involves appropriate counselling and support, based on the care professional's assessment of the situation. Besides counselling, emotional and concrete support are frequently required. Oral counselling is not always sufficient. If the patient and family members are very distressed, it becomes necessary to write down instructions on the appropriate care form to ensure safety of care.

> "You should be able to take into consideration the whole situation, it is not just about the potential trauma or symptom or illness, it is the whole living environment and social situation of the patient and other things that affect his ability to deal with it and manage at home, before you can even consider if he will cope at home."

The last constituent of high quality emergency care that emerged in this study is securing the safety of patients and care professionals, both on site and in the ambulance. Whenever possible, potential risks and threats to safety need to be anticipated. Care professionals may also need to request assistance from the police to ensure both patients' and their own safety. Occasionally, the patient's care may be delayed due to denied access to site before the arrival of police, fire or rescue units. Situational sensitivity and logical, consequent decision-making are thus important qualities in professionals providing high quality emergency care. These skills can be developed through experience and they have a major impact on the safety of patient care.

> "One has to wait, that also affects the quality of emergency care in a way, how soon you get there, there may be some heroin user, who has chest pain, and there may be weapons or something, and you cannot just go and start helping immediately."

Table 1 depicts the constituents of high quality emergency care as experienced by emergency health care professionals working in out-of-hospital emergency services.

Table 1. Constituents of high quality emergency care

Sub-category	Generic category	Main category
Undertaking life-saving measures	Prompt emergency care on site	Constituents of high quality emergency care
Prompt assessment of the patient's condition		
Effective use of the ABCDE Protocol		
Detecting signs of deterioration	Preventing the deterioration of patients	
Preventing breakdown of vital functions		
Preventing complications		
Encountering patients in a professional, patient-centred manner	Providing individualized holistic care	
Meeting the patient's individual needs		
Assessing the patient's life situation		
Detecting risks to patient's health and wellbeing	Arranging safe follow-up care	
Taking the patient's and family's social situation into consideration		
Assessing and supporting coping at home		
Providing sufficient counselling for patients and family members	Supporting the coping of patients and families	
Providing emotional and concrete support for patients and family members		
Detecting potential risks and threats on site	Securing the safety of patients and care professionals on site and in the ambulance	
Optimum use of assistance from other authorities		
Consequent and logical decision-making		

3.3 Factors that affect the quality of emergency care

The analysis of the interviews further revealed that according to emergency health care professionals, the quality of emergency care is affected by the following factors: the emergency care professional's knowledge and skills; the professional's personal qualities; the availability of emergency care equipment; the effectiveness of co-operation; contextual factors; personnel policy and the degree of success in consulting a doctor.

Emergency care professionals' knowledge and skills depend on their education and amount of work experience. Skilled use of the emergency care equipment and application of nursing knowledge to practice are mentioned by the interviewees as important components of the care professionals' competence. Effective orientation of new employees is emphasized in this context. Second, care professionals' personal qualities are also seen to affect care quality and patient satisfaction. Care professionals' character and personality influence patients' experience of the care. Their work motivation and alertness level also directly affect the quality of care. Occasionally, various human factors and care professionals' personal problems may deteriorate the quality of care.

The third factor that emerged from the analysis, the availability of emergency care equipment, depends on responsible care and maintenance of the equipment. It is essential that after its use, the equipment is returned to its place as commonly agreed upon. This practice promotes the quality of care by saving time.

> "We now have uniform equipment, which makes it easier for people, who move from one emer-

> gency care unit to another, sometimes in the middle of a procedure. You jump into another ambulance to help out. It is an important patient safety issue, not only that the equipment is of high quality, but also that they are similar, and each bag and cabinet is equipped the same way, so you know where to find things."

In this study, the fourth factor found to contribute to high quality emergency care was the effectiveness of co-operation between emergency health care professionals, patients, families and other partners. When working with patients and their families, successful co-operation is especially built on the care professional's communication skills. Good co-operation involves encountering and counselling patients and families on site in a manner that creates safety and encourages family members' participation in patient's care at home. The care professional's ability to communicate effectively with the partner at work as well as with police and rescue authorities are also crucial for flexible and effective care. Situational sensitivity is required for smooth co-operation.

> "There are so many moving parts because there are a lot of people involved. Every situation is different."

Fifth, factors associated with the emergency care context and site may have a great influence on the quality of the care provided. There are always situation-specific factors that require attention. Contextual factors, for example darkness, slippery roads or otherwise hazardous environment may jeopardize the safety of the situation. Multiple people may be at risk and in distress.

> "When you think of caring for an individual patient, sometimes factors in the environment affect the quality, for example there is an anxious family member who intervenes, so it is more difficult to concentrate on the situation and you have to spend some time on it before you have space to care for the patient, so sometimes a well-meaning family member may complicate the situation a little."

> "When you go to a flat where there are a lot of intoxicated people, there are great occupational safety risks and you must concentrate on everybody, so that nothing happens, so there are great risks in the environment and that affects how well you can take care of an individual patient."

According to the emergency health care professionals interviewed for this study, personnel policy is an especially significant factor that affects the quality of emergency care. The care professionals feel that support and encouragement from the management enhances the work atmosphere and promotes their work motivation and coping at work. They also find it important that employers maintain sufficient human resources and encourage continuing education. The management's interest in getting to know the staff and in looking after their wellbeing and coping at work are appreciated. In contrast, care professionals' coping at work is found to be undermined by transfers to other positions and by other organizational changes, which create insecurity, diminish the staff's coping resources and impair the function of the whole unit. In Finland, the most recent challenge results from the fact that emergency care units, earlier run by private companies or by municipal rescue authorities, were taken over by hospital districts.

Finally, one more factor that affects the quality of emergency care is consultation with a doctor. Emergency health care professionals find the consultation challenging, if the doctor on call is not familiar with emergency care, does not know what medicines and equipment ambulances carry or is not aware of what possibilities there are to treat patients on site or in the ambulance. Consulting a doctor who is not a native speaker of the Finnish language occasionally presents a risk of misunderstanding. On the other hand, consultation is found to succeed especially well if the care professional has carefully assessed the patient's condition before calling and if instructions are provided by an experienced expert emergency care physician. The quality of care is also promoted by standardized care models and clear instructions provided by physicians for long-term use. Table 2 summarizes the factors that affect the quality of emergency care as experienced by the care professionals interviewed for this study.

4. Discussion

This study accesses experiences of nurses, paramedics, hospital and ambulance attendants and practical nurses working in out-of-hospital emergency medical services. Learning about emergency health care professionals' experiences is valuable, because their descriptions of high quality emergency care and factors that influence the quality of the care depict a picture of the emergency medical services currently provided in Finland. In this study, the quality of emergency care was found to be associated with the care professional's theoretical and practical competence, co-operation, personnel policy and contextual factors.

Part of the factors that affect the quality of emergency care are situation-specific and cannot be controlled. Personnel policy, however, is an area with potential to contribute to the quality and safety of emergency care. In order to pro-

mote staff coping and work motivation, personnel policy must be encouraging and supportive of continuing education. Knox, *et al*.[31] too, emphasize the importance of continuing education in emergency care. This study confirms that good communication between emergency care professionals, patients and families essentially improves the quality and safety of the care delivered. For example, consultation with non-specialist doctors or immigrant doctors is potentially challenging, as the foundation for common understanding is lacking. Close co-operation between emergency care professionals and doctors promotes patient satisfaction and quality of care.[21] Morey, *et al.*[32] and Kilner and Sheppard[33] suggest training and practising team work to enhance communication and to minimize errors in out-of-hospital emergency care. Furthermore, health care managers can promote emergency health care professionals' work motivation by increasing opportunities to participate in decision-making and in developing care quality. Improved motivation is connected to higher quality of care.[34] Working with a familiar partner in a work atmosphere that promotes coping creates further safety and decreases the risk of faulty assessment. It is also essential that all team members become committed to evaluating and developing the quality of their work and that the management demonstrate an encouraging attitude to promote the permanency of staff.[35]

Table 2. Factors that affect the quality of emergency care as experienced by/according to emergency health care professionals

Sub-category	Generic category	Main category
The care professional's education	The care professional's knowledge and skills	Factors that affect the quality of emergency care
Skilled use of the emergency care equipment		
The care professional's work experience		
The care professional's work motivation	The care professional's personal qualities	
The care professional's personality		
The care professional's alertness level		
Human factors		
The condition of the emergency care equipment	The availability of emergency care equipment	
Easy-to-find emergency care equipment		
The care professional's communication skills with patients and families	The effectiveness of co-operation	
The care professional's communication skills with the partner at work		
Co-operation with other authorities		
Emergency care environment	Contextual factors	
The distress of people involved in the situation		
The number of people involved in the situation		
Support from management	Personnel policy	
Personnel management		
Sufficient resources		
Encouraging training and education		
Work atmosphere		
The consulting doctor's expertise and experience	The degree of success in consulting a doctor	
The consulting doctor's Finnish language skills		
Standardized care models and instructions provided by an emergency care physician		

The availability of high quality equipment is another critical constituent of quality in emergency care. The participants of this study generally find the quality of the equipment satisfactory but they would appreciate more training on how to use it. Care professionals also indicate that clear permanent instructions from experienced doctors specialised in emergency care would increase patient safety. Similarly, earlier studies have shown that care professionals' work experience

combined with clear instructions contribute to high quality emergency care.[13, 15, 25] Instructions significantly influence the success of the initial assessment and of the entire emergency care pathway.[36] They can also help in the effort to reach evidence-based, good practices.[37] The work in emergency care, with its constantly changing care situations and encounters naturally entails stress and strain, which makes it all the more important that care continuity is ensured and safe instructions provided.[35]

The increasing share of older population and the growing number of people at risk of social exclusion pose special challenges to patient safety in out-of-hospital emergency care. Professionals working in emergency services will require more profound theoretcal and practical competence in identifying the core problem in older patients, who are often affected by multiple diseases and memory impairment. Emergency care providers will also need to address various psychosocial and social problems that individuals affected by alcoholism or at risk of social exclusion suffer from.

5. Conclusion

The results of this study conducted in Finland highlight the need to pay attention to emergency care professionals' continuing education needs. It is advisable that several professionals share the responsibility for developing practical orientation programmes and for orienting new staff to the use of equipment. The more experienced care professionals, too, would benefit from a new approach to continuing education; as an increasing number of patients will be treated on site, more extensive and holistic competence will be required. Specific contents for education will most probably involve the acute care of geriatric patients, encountering social problems and on-site care of patients affected by mental health problems and intoxicant abuse. Special attention should be paid to the development of situational sensitivity, communication and consultation skills, which have a major impact on care quality and safety. Describing all stages of the care pathway - the care on site, in the ambulance and in hospital emergency department – would make all action visible and help detect needs for further development.

Relevance to clinical practice

The role of continuing education is essential in ensuring that care professionals possess the increasingly holistic and extensive theoretical and practical competences required as the share of patients treated on site only grows. It seems that professionals might benefit from psychological training, case studies and simulation education, designed to practice interaction and communication skills. A national, even international consultation protocol might prevent problems in communication with doctors. Consulting doctors also need to be informed of what action emergency professionals working on site are able and allowed to undertake.

Secondly, the focus of future continuing education should be on the acute care of geriatric patients, on encountering social problems and on the care of patients affected by mental health problems and intoxicant abuse. An increasingly individualized, holistic approach to the patient's situation will be required.

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