Patients’ perceptions of actual care conditions and patient satisfaction with care quality in hospital

Vigdis Abrahamsen Grøndahl
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'The first requirement of a hospital is that it should do the sick no harm.'

Florence Nightingale 1859
Abstract

Patients' perceptions of actual care conditions and patient satisfaction with care quality in hospital

There are theoretical and methodological difficulties in measuring the concepts of quality of care and patient satisfaction, and the conditions associated with these concepts. A theoretical framework of patient satisfaction and a theoretical model of quality of care have been used as the theoretical basis in this thesis.

Aim. The overall aim was to describe and explore relationships between person-related conditions, external objective care conditions, patients' perceptions of quality of care, and patient satisfaction with care in hospital.

Methods. Quantitative and qualitative methods were used. In the quantitative study (I-III), 528 patients (83.7%) from eight medical, three surgical and one mixed medical/surgical ward in five hospitals in Norway agreed to participate (10% of total discharges). Data collection was conducted using a questionnaire comprising four instruments: Quality from Patients’ Perspective (QPP); Sense of Coherence scale (SOC); Big Five personality traits – the Single-Item Measures of Personality (SIMP); and Emotional Stress Reaction Questionnaire (ESRQ). In addition, questions regarding socio-demographic data and health conditions were asked, and data from ward statistics were included. Multivariate statistical analysis was carried out (I-III). In the qualitative study 22 informants were interviewed (IV). The interviews were analysed by conventional content analysis.

Main findings. Patients’ perceptions of quality of care and patient satisfaction ranged from lower to higher depending on whether all patients or groups of patients were studied. The combination of person-related and external objective care conditions explained 55% of patients’ perceptions of quality of care (I). 54.7% of the variance in patient satisfaction was explained, and the person-related conditions had the strongest impact, explaining 51.7% (II). Three clusters of patients were identified regarding their scores on patient satisfaction and patients’ perceptions of quality of care (III). One group consisted of patients who were most satisfied and had the best perceptions of quality of care, a second group of patients who were less satisfied and had better perceptions, and a third group of patients who were less satisfied and had the worst perceptions. The qualitative study revealed four categories of importance for patients’ satisfaction: desire to regain health, need to be met in a professional way as a unique person, perspective on life, and need to have balance between privacy and companionship (IV).

Conclusions. Patients’ perceptions of quality of care and patient satisfaction are two different concepts. The person-related conditions seem to be the strongest predictors of patients’ perceptions of quality of care and patient satisfaction. Registered nurses need to be aware of this when planning and conducting nursing care. There is a need of guidelines for handling over-occupancy, and of procedures for emergency admissions on the wards. The number of registered nurses on the wards needs to be considered. Healthcare personnel must do their utmost to provide the patients with person-centred care.
Sammendrag

Pasienters erfaringer med helsetjenester og pasienters tilfredshet med helsetjenesteekvaliteten i sykehus

Det er teoretiske og metodologiske utfordringer knyttet til måling av begrepene helsetjenesteekvalitet og pasienttilfredshet, og forhold assosiert med disse begrepene. Et teoretisk rammeverk om pasienttilfredshet og en teoretisk modell om helsetjenesteekvalitet danner det teoretiske grunnlaget for denne avhandlingen.

Hensikt. Den overordnede hensikten var å beskrive og utforske sammenhengene mellom person-relaterte forhold, eksterne objektive helsetjenesteforhold, pasienters erfaring med kvaliteten på helsetjenesten og pasienters tilfredshet med helsetjenestene i sykehus.


### Table of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbreviations</td>
<td>6</td>
</tr>
<tr>
<td>Original papers</td>
<td>7</td>
</tr>
<tr>
<td>Introduction</td>
<td>8</td>
</tr>
<tr>
<td>Background</td>
<td>10</td>
</tr>
<tr>
<td>The patient in healthcare</td>
<td>10</td>
</tr>
<tr>
<td>Quality of care</td>
<td>11</td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td>14</td>
</tr>
<tr>
<td>Instruments to measure quality of care and patient satisfaction</td>
<td>17</td>
</tr>
<tr>
<td>Patients’ perceptions of quality of care and patient satisfaction</td>
<td>20</td>
</tr>
<tr>
<td>Person-related conditions and external objective care conditions</td>
<td>21</td>
</tr>
<tr>
<td>Rationale</td>
<td>24</td>
</tr>
<tr>
<td>General and specific aims</td>
<td>25</td>
</tr>
<tr>
<td>Methods</td>
<td>26</td>
</tr>
<tr>
<td>Study designs (Papers I-IV)</td>
<td>26</td>
</tr>
<tr>
<td>Sample</td>
<td>26</td>
</tr>
<tr>
<td>The quantitative study (Papers I-III)</td>
<td>28</td>
</tr>
<tr>
<td>Setting and participants</td>
<td>28</td>
</tr>
<tr>
<td>Data collection – the questionnaire</td>
<td>29</td>
</tr>
<tr>
<td>Instrument translation process and pilot study</td>
<td>34</td>
</tr>
<tr>
<td>Validity and reliability of the instruments</td>
<td>35</td>
</tr>
<tr>
<td>Procedure</td>
<td>37</td>
</tr>
<tr>
<td>Statistical analysis</td>
<td>39</td>
</tr>
<tr>
<td>Drop-out analysis</td>
<td>40</td>
</tr>
<tr>
<td>The qualitative study (Paper IV)</td>
<td>41</td>
</tr>
<tr>
<td>Informants and procedure</td>
<td>41</td>
</tr>
<tr>
<td>Data collection – qualitative interviews</td>
<td>42</td>
</tr>
<tr>
<td>Content analysis</td>
<td>42</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>43</td>
</tr>
<tr>
<td>Ethical considerations</td>
<td>44</td>
</tr>
<tr>
<td>Main findings</td>
<td>47</td>
</tr>
<tr>
<td>Patients’ perceptions of quality of care (PR) (Papers I-III)</td>
<td>47</td>
</tr>
<tr>
<td>Patient satisfaction (Papers II and III)</td>
<td>48</td>
</tr>
<tr>
<td>Predictors of patients’ perceptions of quality of care (PR) (Paper I)</td>
<td>48</td>
</tr>
<tr>
<td>Predictors of patient satisfaction (Paper II)</td>
<td>49</td>
</tr>
<tr>
<td>Patient profiles regarding patient satisfaction and perceptions of quality of care (PR), and their characteristics (Paper III)</td>
<td>50</td>
</tr>
<tr>
<td>Patients’ satisfaction in relation to hospital stay (Paper IV)</td>
<td>52</td>
</tr>
<tr>
<td>Desire to regain health</td>
<td>52</td>
</tr>
<tr>
<td>Need to be met in a professional way as a unique person</td>
<td>53</td>
</tr>
<tr>
<td>Perspective on life</td>
<td>54</td>
</tr>
<tr>
<td>Need to have balance between privacy and companionship</td>
<td>54</td>
</tr>
<tr>
<td>Summary of results and comprehensive understanding</td>
<td>55</td>
</tr>
</tbody>
</table>
Discussion ........................................................................................................... 57
Discussion of results ............................................................................................... 57
Patients’ perceptions of quality of care (PR) (I-III) ........................................... 57
Patients’ perceptions of satisfaction (II-III) ....................................................... 58
The impact of person-related conditions on patients’ perceptions of
quality of care (PR) (I) ...................................................................................... 58
The impact of external objective care conditions on patients’ perceptions
of quality of care (PR) (I) ................................................................................... 60
The impact of patients’ person-related conditions, external objective
care conditions, and perceptions of quality of care (PR) on patient
satisfaction (II) .................................................................................................. 62
Patient satisfaction in relation to experiences of hospital stay and the
three identified patient profiles (III-IV) ............................................................. 64
Methodological considerations ........................................................................... 68
Design .................................................................................................................. 68
The quantitative study (I-III) ............................................................................. 68
The qualitative study (IV) .................................................................................... 73
Conclusions and implications for practice ....................................................... 74
Future research ..................................................................................................... 75
Acknowledgements .............................................................................................. 76
References ............................................................................................................ 78

Papers I-IV
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Five</td>
<td>Big Five personality traits</td>
</tr>
<tr>
<td>ESRQ</td>
<td>Emotional stress reaction questionnaire</td>
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<td>GLM</td>
<td>General linear model</td>
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<td>NORPEQ</td>
<td>The Norwegian patient experience questionnaire</td>
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<td>PR</td>
<td>Perceived reality</td>
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<td>PSQ-III</td>
<td>The patient satisfaction questionnaire III</td>
</tr>
<tr>
<td>QPP</td>
<td>Quality from patients’ perspective</td>
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<tr>
<td>RN</td>
<td>Registered nurse</td>
</tr>
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<td>SI</td>
<td>Subjective importance</td>
</tr>
<tr>
<td>SIMP</td>
<td>The single-item measures of personality</td>
</tr>
<tr>
<td>SOC</td>
<td>Sense of coherence</td>
</tr>
</tbody>
</table>
Original papers

This thesis is based on the following papers, which will be referred to by their Roman numerals:


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Introduction

Excellence in care is what those in need of healthcare services wish for, and it is also the main goal for those providing the care. Healthcare authorities in western countries, including Norway, have placed a responsibility on healthcare institutions to involve patients in their care and to establish systems for feedback from patients to healthcare personnel and hospital wards, so that the feedback can be utilized in the work on the wards (The Norwegian Directorate of Health, 2005; Turris, 2005; Geraedts, Schwartz, & Molzahn, 2007; Ministry of Health and Care Services, 2011). In addition healthcare restructuring, biomedical technological advances and shortage of healthcare professionals are parts of the hospitals’ daily life, stretching the healthcare system past breaking point (Turris, 2005). Maintaining a balance between care quality and cost is a challenge in today’s healthcare institutions, where resources are limited and needs increasing (Merkouris, Papathanassoglou, & Lemonidou, 2004).

Patients’ experiences with quality of care and patient satisfaction in hospital are considered to be important elements in quality improvement work in hospitals, and are also seen as indicators of quality of healthcare (Crow, Gage, Hampson, Hart, Kimber, Storey, & Thomas, 2002; Thorne, Ellamushi, Mbandari, McEvoy, Powell, & Kitchen, 2002; Olmedal, Garratt, Bjertnaes, Bjornsdottir, Freil, & Sachs, 2007). Such indicators are being developed to measure quality of healthcare in the Nordic countries as experienced by patients (Nordisk Ministerråd, 2010).

Patients’ perceptions of quality of care and their satisfaction with quality of care may affect health outcomes (Crow, et al., 2002; Wilde Larsson & Larsson, 2009). Patients who are satisfied with their nursing care are more likely to follow treatment and, consequently, to have better health outcomes (Sitzia & Wood, 1997; Wagner & Bear, 2009). Patient satisfaction is also an important contributor to both physical and mental health-related quality of life (Guldvog, 1999). Patients’ perceptions of quality of care affect also their health behavior after discharge, and positive ratings of service quality seem to be correlated with no hesitation about re-visiting the same hospital ward (Wilde Larsson & Larsson, 2009).

Questionnaires have been developed to ask the patients about their perceptions of care quality and how satisfied they were with care received (Crow, et al.,
One matter that must be discussed is whether the results from these are useful for healthcare personnel and hospital managers, since 80-90% of patients rate their satisfaction as “high” (Crow et al., 2002). One may think that satisfied patients have had good care experiences, while patients with low satisfaction scores have had poor experiences. This is, however, only part of the picture. When I worked as a nurse in an intensive care unit, I met patients who had experienced poor care episodes, but nevertheless claimed to be very satisfied with their stay, and I also met patients who were not satisfied, but who told me about excellent care experiences. Patients also tend to write to newspapers to tell about their hospital stay, and they are especially eager to write when their experiences have been poor. However, such articles may describe several poor care episodes, and then end with the conclusion that all in all, the writer was satisfied with the hospital stay. These episodes made me wonder: why is it so?

Literature reviews of quality research, further, showed confusion between patients’ satisfaction, patient perceptions and actual experiences of the care received (Crow, et al., 2002; Sofaer & Firminger, 2005). These concepts are often used interchangeably within one study and between studies, and it may not be clear how satisfaction, perception of care quality, and experiences are measured (Sofaer & Firminger, 2005; Vukmir, 2006).
Background

The patient in healthcare

Patient has traditionally been associated with powerlessness against the medical establishment (Sitzia & Wood, 1997). In the 1980s, the concept ‘consumer’ began to appear in quality literature as part of a general shift towards consumerism evident in aspects of public service. The consumerist approach to healthcare was evident through governmental acts and regulations in different countries (Carr-Hill, 1992; Greeneich, 1993; Sitzia & Wood, 1997; Ministry of Health and Care Services, 1999; The Norwegian Directorate of Health, 2005). ‘Consumer’ originates in the private rather than the public sector, and is strongly connected to the commercial world. There has been strong criticism of the use of the concept in the healthcare field (Carr-Hill, 1992; Sitzia & Wood, 1997). Consumers’ rights cannot easily be applied in a healthcare context (Carr-Hill, 1992). Greeneich (1993) and Sitzia and Wood (1997) argue, on the other hand, that the concept of ‘consumer’ dignifies the professional healthcare patient relationship in a way that the concept of ‘patient’ does not.

‘Consumer’ and ‘customer’ satisfaction are concepts commonly used in economic research. Patient satisfaction is the concept most often used in research within the healthcare sciences. Using the concepts ‘consumer’ or ‘customer’ does not automatically give power to the person in need of healthcare. As is shown in the Norwegian Patients’ Rights Act of 1999 (Ministry of Health and Care Services, 1999), the patient is no longer looked upon as powerless and passive. Both healthcare authorities and healthcare personnel expect the patients to be actively involved in their own healthcare. Boudreaux, Ary and Mandra (2000) view the patient provider interaction as a dynamic one, during which both the patient and the provider are constantly giving, receiving, and evaluating information about one another.

Recently hospital wards have been implementing ‘patient-centred’ care (Olsson, Hansson, Ekman, & Karlsson, 2009). The development of patient-centred nursing and healthcare, changes the focus from the illness in a person to the person with an illness (Pelzang, 2010). The term is described as the unique way to care for the individual patient, and is also recognized as a measure of quality of healthcare and used in quality research (Robinson, Callister, Berry, & Dearing, 2008). More recently the concept of ‘person-centred’ care has been
introduced in the delivery of nursing and healthcare (McCormack & McCance, 2006). Implementing a person-centred approach to nursing and healthcare may provide a more therapeutic relationship between healthcare personnel, patients and their families underpinned by values of seeing patients as equal partners in planning, developing and assess healthcare (McCormack, Dewing, & McCance, 2011).

The focus of this thesis is quality of care and patient satisfaction with healthcare in hospital. Hospitalised persons are still called patients, and patients today have rights and obligations when being part of the healthcare system. The concept of ‘patient’ will be used in this thesis.

**Quality of care**

The World Health Organization (WHO) (2009) and The International Council of Nurses (ICN) (2006) state that the overall goal is highest possible health for all people, and providing high quality care is one approach for reaching this goal. The Norwegian national action plan on health and social care (Ministry of Health and Care Services, 2011) emphasises the importance of high-quality care through patient-centred care and the importance of building systems for patients’ to take part in the evaluation of quality of care on a regular basis.

‘Quality of care’ is a concept that can be given different meanings, depending on different cultures, whether it is on an individual level or a social level, which aspect we are looking at; process, structure or outcome, whether it is the patients, the relatives, the healthcare personnel, the administrators or the politicians who define the term and the time at which it is defined (Donabedian, 1966, 1980; Wilde, 1994; Pettersen, Veenstra, Guldvog, & Kolstad, 2004). It is considered by researchers to be a multidimensional concept (Crow, et al., 2002).

Florence Nightingale was the first to organise and structure nursing care in the middle of the 19th century. Her notes have to be understood in the context of her time, but much is relevant today in hospitals around the world. She described in her book, *Notes on Nursing* (1859/2010), her views of good nursing. The aim of nursing was to place the individual in the best condition for nature to act. She was concerned about the quality of care given to each patient.
During the Crimean War she was a proficient bedside nurse with great concern for the soldiers, and she also took systematic notes of the care and the patients’ reaction to the care to improve nursing (Nightingale, 1859/2010). She did not explicitly use the concept ‘quality’, but quality care is what she implicitly aims at with her notes on nursing. She saw, however, the quality of care from the nurses’ perspective.

Donabedian (1966) is one of the leading researchers in quality of care research, and has found that aspects of structure, outcome and process are indicators of the quality of medical care. ‘Structure’ was described as the fixed part of the practice-setting and consisted, like today, of providers, resources and tools. ‘Process’ was the relationship between care activities and the consequences of them on the health and welfare of the patient. ‘Outcomes’ were interpreted as changes in the patient’s condition. Donabedian (1966) wanted to turn the assessment process from evaluation to understanding, i.e. from “What is wrong here?” to “What goes on here?” He claimed that the quality of care is as good as the patients say their satisfaction with the care received, and stated that patient satisfaction is not simply a measure of quality, but the goal of health care delivery (Donabedian, 1980). In other words, patient satisfaction is both an outcome and a contributor to other objectives and outcomes, according to Donabedian (1980, 2003). This is supported by Zastowny, Stratmann, Adams and Fox (1995). Donabedian was among the first to make a link between quality of medical care and patient satisfaction (1966), and to view quality of care from the patient’s perspective (1980). Based on a literature review, he found that quality of care from a patient’s perspective is a combination of the quality of three aspects: technical ward, interpersonal ward and organisational ward environment (Donabedian, 1980).

Wilde, Starrin, Larsson and Larsson (1993) using a grounded theory approach developed a theoretical model of quality of care from a patient perspective. Through this approach they turned the perspective of quality of care from that of the healthcare workers’ to the patients’. Patients’ perceptions of what constitutes quality of care are formed by their systems of norms, expectations and experiences, and by their encounters with an existing care structure. The theoretical model outlined two basic conditions that quality of care builds on, i.e. ‘the resource structure of the care organisations’ and ‘the patients’ preferences’. The resource structures are person-related qualities that refer to the caregivers, and physical and administrative environmental qualities that in
turn refer to infrastructural components of the care environment, such as organisational rules and technical equipment. The patients’ preferences consist of a rational aspect that refers to the patient’s strive for order, predictability and calculability in life, and a human aspect that refers to the patient’s expectations that her/his unique situation is taken into account. The patients’ perception of quality of care based on this theoretical model may be considered from four dimensions: the medical-technical competence of the caregivers, the identity-oriented approach of the caregivers, the physical-technical conditions of the care organisation, and the socio-cultural atmosphere of the care organisation (Figure 1) (Wilde, et al., 1993).

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<thead>
<tr>
<th>The patient’s preferences</th>
<th>Person-related qualities</th>
<th>Qualities related to the physical and administrative care environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationality</td>
<td>Medical-technical competence</td>
<td>Physical-technical conditions</td>
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<tr>
<td>Humanity</td>
<td>Identity-oriented approach</td>
<td>Socio-cultural atmosphere</td>
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</table>

Figure 1. Theoretical model of quality of care from the patients’ perspective (Wilde, et al., 1993). With permission from Wiley-Blackwell.

Patients’ individual perceptions of quality of care are important because they may reflect patients’ perceptions of standards in hospital wards (Crow, et al., 2002), and also clarify how patients define quality (Sofaer & Firminger, 2005). This knowledge can guide healthcare providers when they prioritize, and can make them more responsive to the patients’ needs and wants. Patients can define good quality, evaluate healthcare delivery and report their experiences. The patients’ perspectives focus on aspects of importance to the patient (Wensing, Jung, Mainz, Olesen, & Grol, 1998). The Norwegian national action plan on health and social care (Ministry of Health and Care Services, 2011) also
emphasises the importance of patient involvement in quality improvement work. Quality of care in this thesis is viewed from the patients’ perspective.

Patient satisfaction

Patient satisfaction, which has its roots in the consumer movement of the 1960s, has both practical and political relevance in the current healthcare system. It is commonly used to guide research into patients’ experiences of healthcare (Gut, Gothen, & Freil, 2004; Danielsen, Garratt, Bjertnes, & Pettersen, 2007). A commonly accepted conceptual definition has not been established (Merkouris, Ifantopoulos, Lanara, & Lemonidou, 1999). There are, however, different ways of looking at the concept of satisfaction. The discrepancy theory, the fulfilment theory, the equity theory (Lawler, 1971), and the value-expectancy model (Linder-Pelz, 1982), are alternative approaches to the concept of satisfaction. A tentative model developed by Larsson, Wilde and Starrin (1996), and further developed by Larsson and Wilde-Larsson (2010) that view patient satisfaction as an emotion, presents an alternative approach to the concept.

Lawler (1971) categorized satisfaction studies according to their implicitly theoretical perspective due to the way in which satisfaction was measured. He identified discrepancy theory, equity theory and fulfillment theory (Lawler, 1971). The three theories are similar, in that they define satisfaction as being concerned with differences between what one wants and what one perceives receiving. There is no agreement about what the concepts of ‘want’ or ‘desire’ encompass (Linder-Pelz, 1982; Williams, 1994). In addition, equity theory states that satisfaction is the perceived balance of inputs and outputs, and one evaluates one’s own balance against the balances of others (Lawler, 1971), which introduces the role that social comparison processes might have in healthcare evaluations (Linder-Pelz, 1982; Williams, 1994).

Linder-Pelz (1982) has developed a value-expectancy model of satisfaction. The model was based on the attitude theory and the job satisfaction research carried out by Fishbein and Azjen (1975). Linder-Pelz (1982) defines patient satisfaction as: ‘positive evaluations of distinct dimensions of the health care’. The care evaluated might be a single visit, a particular healthcare setting or
healthcare in general. Very little of patient satisfaction has been explained in concepts such as ‘values’ and ‘expectations’ (Williams, 1994). The nature of expectation is complex and a theoretical description is lacking (Schmidt, 2003). Expectations might change during a hospitalisation because of what is experienced. Williams (1994) asked whether the patients have values and expectations about the healthcare and claimed that we do not currently know how patients evaluate it.

Just as Williams (1994) and Schmidt (2003), Wilde (1994) found it more relevant to relate a patient’s experience of actual healthcare to his or her preferences, rather than to expectations. Preferences show the subjective meaning of a care episode to a person. This means that measuring patients’ expectations does not tell us much about the patients’ perception of quality of care or patient satisfaction. It tells us something about how the patients believe it will be. To measure the subjective importance (preferences), expresses how the patients wish it to be (Wilde, 1994). Index of measures based on patients’ preferences and experiences of actual healthcare (perceived reality) has been developed to provide an overall picture of the responses for instance on a hospital ward. If the patients give high or low scores on both perceived reality and subjective importance, a state of balance is indicated. However, high scores on subjective importance and low scores on perceived reality indicate a deficit and something has to be done. On the contrary low scores on subjective importance and high scores on perceived reality, indicate conditions that should be given low priority in quality improvement work (Wilde, Larsson, Larsson, & Starrin, 1994; Larsson & Wilde Larsson 2003).

It is open to discussion whether patient satisfaction is an attitude, a perception, an opinion of healthcare, or an attitude towards life in general, and not especially towards the healthcare in hospital (Merkouris, et al., 2004). It is also unclear whether patient satisfaction and dissatisfaction are opposite ends of the same continuum, or two different phenomena that require two different definitions (Biering, Becker, Calvin, & Grobe, 2006). In a review, Coyle and Williams (1999) go even further and claim that research should theorise the concept of dissatisfaction and develop a framework for exploring dissatisfaction with healthcare to gain additional insight into patients’ healthcare experiences in hospital.
Patient satisfaction can be seen as a subjective concept from the patient's viewpoint (Merkouris, et al., 2004). One author claimed that patient satisfaction data is limited by its subjective nature (Linder-Pelz, 1982). Later research has emphasised the need to clarify patient satisfaction and what influences patient satisfaction from the patients' perspective (Avis, Bond, & Arthur, 1995; Johansson, Oléni, & Fridlund, 2002).

Larsson and Wilde-Larsson (2010) presented a tentative model of patient satisfaction in a psychological framework (Figure 2). The framework had its starting point in the cognitive-phenomenological tradition developed by Lazarus and Folkman (1984), which states that the way a person appraises and copes with a situation causally contributes to his or her emotional reaction. In turn, the appraisal process is shaped by interacting person-related conditions and actual, external conditions. Socio-demographic characteristics, the individual’s health conditions and personality are person-related conditions that affect the person’s beliefs system (expectations) and commitments (preferences). The person-related conditions, including expectations and preferences, interact with external objective conditions, such as the model of care. The appraisal and coping processes follow the perception of actual care received (perceived health service attribute reality) and give an emotional reaction called patient satisfaction (Larsson, 1987; Larsson, et al., 1996; Larsson & Wilde-Larsson, 2010).
Figure 2. A tentative model of patient satisfaction. Relationship between person-related conditions, external objective conditions, appraisal and coping processes, and emotional reactions (Larsson & Wilde-Larsson, 2010). With permission from Emerald Group Publishing Limited.

Expectations, preferences, appraisal, coping processes and emotions, are psychological phenomena, that exist ‘inside the head’ of every patient. In addition patients’ satisfaction can be seen as a feeling of being satisfied/dissatisfied (Larsson & Wilde-Larsson, 2010). Patients’ satisfaction is therefore, in this thesis seen from the patients’ perspective as the patient’s emotional reaction to an actual care episode.

**Instruments to measure quality of care and patient satisfaction**

Quality of care was from the 1950’s evaluated by asking physicians and nurses what they thought was important to the patient when hospitalised and what they thought the patient felt about the care received (Abdellah & Levine, 1957; Hoie, Hernes, & Hveem, 1973; Larson, 1987; Boyle, Moddeman, & Mann, 1989; Von Essen & Sjödén, 1991). As early as 1967, Raphael asked whether
healthcare personnel had knowledge of the patients’ thoughts and views (Raphael, 1967). Later studies showed that the aspects of care that physicians and nurses found to be important were not at all important to patients. Similarly, other aspects that were important to patients were not at all regarded as important by physicians and nurses (Larson, 1987; Boyle, et al., 1989; Von Essen & Sjödén, 1991). Physicians and nurses were also less satisfied with the care the patients received than the patients themselves (Boudreaux, et al., 2000), and fewer personnel thought that the patients were satisfied than was actually the case (Lövgren, Sandman, Engström, Norberg, & Eriksson, 1998). Along with a strengthening of patients’ rights in the healthcare system and a turning towards consumerism and patient-centered care, questionnaires were developed to ask the patients how they experienced quality of care and how satisfied they were with the care they received (Wilde, et al., 1994; Castle, et al., 2005).

Some instruments have been developed to measure specific aspects or to be used within specific contexts such as neurosurgical care (Thorne, et al., 2002), patients’ staffing perceptions and patient care (Schmidt, 2004), patient satisfaction with hospital performance (Zastowny, et al., 1995), patient satisfaction with hospital care and nursing care (Ehnfors & Söderström, 1995), and patient satisfaction in hospital from admission to discharge (González, Quintana, Bilbao, Escobar, Aizpuru, Thompson, Esteban, Sebastiab, & de la Sierra, 2005). Other instruments have been developed to conduct more general surveys of quality of care. Examples of such instruments are the Picker Institute Questionnaire (Jenkinson, Coulter, Bruster, Richards, & Chandola, 2002), the Norwegian Patient Experience Questionnaire (NORPEQ) (Oltedal, et al., 2007), the Patient Satisfaction Questionnaire III (PSQ-III) (Marshall, Hays, & Sherbourne, 1993), Quality from Patients’ Perspective (QPP) (Wilde, et al., 1994; Larsson, Wilde Larsson, & Munck, 1998; Wilde Larsson & Larsson, 2002) and the Emotional Stress Reaction Questionnaire (ESRQ) (Larsson & Wilde-Larsson, 2010).

The Picker Institute Questionnaire (Jenkinson, et al., 2002) was developed with the aim of clarifying what inpatients thought about the way they were treated and what the problems were. The NORPEQ (Oltedal, et al., 2007) are related to the patients’ experiences while in hospital. It includes eight questions identified as indicators of quality of care for adult somatic inpatients in the Nordic countries (Nordisk Ministerråd, 2010). These eight questions are six questions focused on relations with healthcare personnel, one question on
adverse event and one on general satisfaction. The Picker Institute Questionnaire and the NORPEQ ask specifically about patients’ experience of healthcare. These questionnaires, however, do not include questions concerning the patients’ subjective importance of these experiences. The PSQ-III (Marshall, et al., 1993) measures global satisfaction with medical care, and patient satisfaction with specific dimensions of care. None of the three questionnaires are based on a theoretical model of quality of care, which is something that researchers emphasise the need for in quality of care instruments (Raftopoulos, 2005; Vukmir, 2006; Larsson & Wilde-Larsson, 2010).

The Quality from Patient’s Perspective (QPP) questionnaire measures patients’ perception of actual care. QPP is a patient centered questionnaire derived from an empirically based theoretical model of patients’ perception of quality of care (Wilde, et al., 1993; Wilde, et al., 1994). The items are evaluated in two ways; by patients’ perception of the actual care received and by the subjective importance of the respective care received (Wilde Larsson & Larsson, 2002).

The Emotional Stress Reaction Questionnaire (ESRQ) (Larsson, 1987; Larsson & Wilde-Larsson, 2010) focuses on the emotional aspects of the acute stress reaction in a care context (Larsson & Wilde-Larsson, 2010). The questionnaire is derived from coping theory (Lazarus & Folkman, 1984), and can also make predictions of the person’s psychological coping potential. In hospital, the instrument measures how a patient has cognitively interpreted a care situation, what the strength of the stress reaction to the care situation is, and it predicts the patient’s psychological potential for coping with this care situation.

In this thesis quality of care was seen from the patient’s perspective, and patient satisfaction was viewed as an emotion. The quality of care in the thesis was measured using the QPP, and patient satisfaction was measured using the ESRQ.

The QPP has been derived from a theoretical model of quality of care, and the ESRQ has been derived from coping theory, hence they have a sound theoretical base and meet the requirements for using questionnaires in quality research. The QPP also has the advantage of measuring the patients’ subjective importance of the care episodes in addition to their perceptions of these episodes. If the experiences are of no or little importance, the intervention for
quality improvements should be directed towards other experiences of importance to the patient. The QPP is frequently used to measure quality of care from the patients’ perspective (see e.g. Persson, Gustavsson, Hellström, Lappas, & Hultén, 2005; Muntlin, Gunningberg, & Carlsson, 2006; Franzén, Björnstig, Jansson, Stenlund, & Brulin, 2008). The ESRQ has an emotion oriented approach (Larsson & Wilde-Larsson, 2010).

Patients’ perceptions of quality of care and patient satisfaction

Results from care quality studies showed that the overall view of patients’ perceptions of quality of care mostly was good (Wilde Larsson, Larsson, Chanterau, & von Holstein, 2005; Danielsen, et al., 2007), and patient satisfaction was high (Crow, et al., 2002; Jenkinson, et al., 2002). However, studies have suggested that patient satisfaction scores present a limited and optimistic picture, since questions about specific aspects of patients’ experiences showed that inpatients who rated the satisfaction as ‘Excellent’ at the same time reported several problems (Bruster, Jarman, Bosanquet, Weston, Erens, & Delbanco, 1994; Jenkinson, et al., 2002). One study addressing the paradoxes of patient satisfaction with hospital care found that poor patient experiences with aspects of care did not correlate with low patient satisfaction scores. In fact, the overall patient satisfaction was rated high (Papanikolaou & Ntani, 2008). There is a question of whether it may be difficult for patients to criticize the healthcare quality when answering questionnaires with questions with fixed responses, and where there is no space for actual care situations to rate (Riiskjær, Ammentorp, & Kofoed, 2011). Other examples of this discrepancy are the coexistence of high levels of patient satisfaction with pain management and high levels of pain (Sauaia, Min, Leber, Erbacher, Abrams, & Fink, 2005; Beck, Towsley, Berry, Lindau, Fields, & Jensen, 2010). The results from an interview study examining this discrepancy between high satisfaction rating and high levels of pain intensity indicated that patients expected to have some unrelieved pain after surgery, the healthcare personnel did their best, and the patients did not want to be troublesome to busy personnel (Idvall, 2002).

The discrepancy between high scores on patient satisfaction and poor healthcare episodes are a problem when the purpose of healthcare quality research is to improve the quality of care.
**Person-related conditions and external objective care conditions**

Studies have shown that different conditions have impact on patients’ perception of quality of care and patient satisfaction, and these conditions can be classified into two broad areas: person-related conditions and external objective care conditions.

The person-related conditions comprise for example socio-demographic aspects, health condition, personality and commitments. Some studies have reported that women rate their satisfaction with quality of care higher than men (Ware, Davies-Avery, & Stewart, 1978; Hsieh & Kagle, 1991), while others have reported that women have significantly poorer scores than men (Danielsen, et al., 2007; Findik, Unsar, & Sut, 2010). Further, some studies have found that sex is unrelated to patients’ perception of quality of care (Linn & Greenfield, 1982; Hall & Dorman, 1990). Wilde Larsson, Larsson and Starrin (1999) found no difference between men and women regarding actual care episodes, but women tended to give different care aspects higher subjective importance than men.

Studies showed that age is related to patient satisfaction. Older patients tend to rate their experiences and satisfaction with quality of care higher than younger patients (Sitzia & Wood, 1997; Jackson, Chamberlin, & Kroenke, 2001; Jenkinson, et al., 2002; Thi, Briancon, Empereur, & Guillemin, 2002; Vukmir, 2006; Danielsen, et al., 2007). Education has been identified as having a significant impact on patients’ perception of quality of care. High scores on quality of care are often associated with lower levels of education (Da Costa, Clarke, Dobkin, Senecal, Fortin, Danoff, & Esdaile, 1999; Danielsen, et al., 2007; Findik, et al., 2010). However, one study showed that educational status improved satisfaction with quality of care (Vukmir, 2006).

Studies found that health status was related to the patients’ perception of quality of care, and patients in better health tend to rate quality of care higher than patients in poorer health (Jenkinson, et al., 2002; Thi, et al., 2002; Danielsen, et al., 2007). Patients who rated their physical health better, are more likely to rate their perception of quality of care higher than patients with poorer physical condition (Da Costa, et al., 1999; Kroenke, Stump, Clark, Callahan, & McDonald, 1999; Jackson, et al., 2001; Westaway, Rheeder, van Zyl, & Seager, 2003; Henderson, Caplan, & Daniel, 2004). Higher scores on psychological
well-being were associated with higher ratings of patient satisfaction (Da Costa, et al., 1999; Westaway, et al., 2003).

Personality was found to be only marginally associated with patient satisfaction (Hendriks, Smets, Vrielink, van Es, & de Haes, 2006; Larsson & Wilde-Larsson, 2010). The patients’ sense of coherence varied systematically with the patients’ perceived reality. High scores on sense of coherence scale correlated with high scores on patients’ perceived reality, and vice versa, but only weakly with the patients’ subjective importance of quality of care (Wilde Larsson & Larsson, 1999).

Studies found that length of stay have an impact on patient’s satisfaction: those hospitalised for lengthy periods were most satisfied (Findik, et al., 2010). Skill of nursing care was statistical significantly associated when patients stayed less than one week, while recovery of physical health, skill of nursing care and respect for patients’ opinions and feelings were statistical significant when patients stayed more than one week but less than one month. Relief from pain and respect for patient’s opinions and feelings were statistical significantly associated with satisfaction when patients were hospitalised for more than one month (Tokunaga & Imanaka, 2002).

The external objective care conditions comprise aspects such as the hospital, the ward and personnel, the number of beds, models of nursing care and occupancy. Hospital size was found to have impact on patients’ quality of care perceptions. Inpatients rate quality of care higher in smaller hospitals than in medium-sized and large hospitals (Holte, Bjertnæs, & Stavem, 2005). Regarding ward type a Japanese study found that surgical patients tended to give higher scores on the caregivers’ technical skills than patients on medical wards (Murakami, Imanaka, Kobuse, Lee, & Goto, 2010).

Competence of healthcare personnel has been identified as an important aspect of patient satisfaction with care quality (Henderson, et al., 2004). Patients gave higher scores for their satisfaction with quality of care when the clinics were based on nurse specialists, compared with physician-based and a mix of physician-based and nurse-based clinics (Graveley & Littlefield, 1992). The role of the specialist nurse was recognized as being significant for patients’ experiences and satisfaction with care quality on a neurosurgical ward (Thorne, et al., 2002).
Patients’ experiences with nursing care were found to be directly related to patients’ perceptions of quality of care (Schmidt, 2004), patients’ overall satisfaction with hospital stay and their intent to recommend the hospital (Abramowitz, Cote, & Berry, 1987). Further, care by all personnel followed by nursing care was the most influential attribute to patients’ rating of excellent experiences (Otani & Kurz, 2004; Otani, Waterman, Faulkner, Boslaugh, Burroughs, & Claiborne, 2009; Otani, Waterman, Faulkner, Boslaugh, & Claiborne, 2010).

As early as 1957 Abdellah and Levine reported a positive link between the availability of more hours of professional nursing service in hospitals and patients’ satisfaction with care quality. Nurses’ job satisfaction was, further, found to influence patient satisfaction with nursing care (Arentz & Arentz, 1996). The nurse-physician relationship was also found to be a significantly predictor of patients’ perceptions of quality of care (Shen, Chiu, Lee, Hu, & Chang, 2011).

A comfortable environment, comprising such aspects as hotel services (Henderson, et al., 2004) and staying in newer hospital buildings (Lawson & Wells-Thorpe, 2002) has had a positive impact on patients’ satisfaction ratings. The general atmosphere, together with successful rehabilitation and the quality of medical care, was found to be a determinant of overall satisfaction in German hospitals (Haase, Lehnert-Batar, Schupp, Gerling, & Kladny, 2006). The general atmosphere was strongly associated with admission procedures, accommodation, catering, service, organisation and nursing care.

To take into account the multidimensional reality of a hospital, and the patient in the hospital, more studies need to use multivariate analysis to catch this complex reality, so that results can be used in quality improvement work (Hearld, Alexander, Fraser, & Jiang, 2008). There is also a need for more mixed methods, because the combination of qualitative and quantitative studies may give a more complete picture of quality of healthcare (Henderson, et al., 2004; Turris, 2005; Hearld, et al., 2008).
Rationale

Patients’ perceptions of quality of care and patient satisfaction are important indicators of healthcare quality, and are also associated with health outcome and psychological well-being after hospital stay. However, there are theoretical and methodological difficulties in measuring quality of care and patient satisfaction, and the conditions associated with the concepts. Theoretically based research is limited, and there is still no agreement about what the two concepts encompass and how they are related to each other. In actual situations in hospitals, the conditions within the person-related and external objective care conditions appear to interact and co-vary with the patients’ perceptions of quality of care and the patients’ satisfaction. Many of earlier studies regarding quality and satisfaction in healthcare have used univariate analysis. There is a need for the researchers to increase the use of multivariate analytic techniques to take into consideration the complex reality in healthcare. Using multivariate analysis may give results that are closer to the actual care situation. Further, the use of mixed methods may lead to a better understanding of quality of care and patient satisfaction. The theoretical framework developed by Larsson and Wilde-Larsson (2010), and the theoretical model of quality of care from the patients’ perspective by Wilde et al. (1993) was used as the theoretical basis in this thesis.
General and specific aims

The overall aim of this thesis was to describe and explore relationships between person-related conditions, external objective care conditions, patients’ perceptions of quality of care, and patient satisfaction with care in hospital.

The specific aims were to:

I. Describe the patients’ perceptions of quality of care and to explore combinations of person-related and external objective care conditions as potential predictors of these perceptions.

II. Describe patients’ care-quality perception and satisfaction, and to explore potential predictors of patients’ satisfaction as person-related conditions, external objective care conditions and patients’ perception of actual care received (‘PR’) in relation to a theoretical model.

III. Explore the profiles of patients with respect to two variables: patient satisfaction and patients’ perception of the quality of care and to describe and compare person-related conditions and external objective care conditions that characterise the patient profiles.

IV. Describe patients’ satisfaction in relation to their experiences of hospital stay.
Methods

Study designs (Papers I-IV)

This thesis includes four papers (I-IV). The mixed-method design used was the explanatory design in which the quantitative data were collected first, and then the qualitative data (Polit & Beck, 2012). The advantages of the mixed-method design in this thesis include complementarity, practicality, incrementality, and enhanced validity (Polit & Beck, 2012). Hearld et al. (2008) recommend the use of mixed methods in quality research to be able to construct a more complete picture of healthcare quality and of how to improve quality. There are different ways of describing mixed-methods design, and the explanatory design used in this thesis can be described as an embedded design, since the quantitative data are dominant and the qualitative data is supportive of the quantitative data (Polit & Beck, 2012). Mixed-methods research was used in this thesis to strengthen the design and enhance the ability to interpret the results.

A cross-sectional study with a quantitative design was used (I-III) in combination with a descriptive approach with a qualitative design (IV). Table 1 gives an overview of the four papers.

Table 1. Overview of the studies, Papers I-IV

<table>
<thead>
<tr>
<th>Paper</th>
<th>Design</th>
<th>Method</th>
<th>Data collection</th>
<th>Methods of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-III</td>
<td>Descriptive</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>Statistics</td>
</tr>
<tr>
<td></td>
<td>Explorative</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Cross-sectional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Descriptive</td>
<td>Qualitative</td>
<td>Individual interviews</td>
<td>Qualitative content analysis</td>
</tr>
</tbody>
</table>
Figure 3. Overview of the numbers of included and excluded patients in Papers I-IV.
The quantitative study (Papers I-III)

Setting and participants

The setting consisted of eight medical, three surgical and one mixed medical/surgical ward in five hospitals in Norway. The hospitals were chosen to represent all parts of Norway: north, south, west and east. Hospital locations ranged from rural to city-university. A consecutive sample of patients was recruited. The inclusion criteria were: (1) the person should be 18 years or older, (2) should understand Norwegian, and (3) the person’s mental and physical health should be such that it was ethically justifiable to invite him or her to participate. A proportional sampling was used, that is the number of participants asked to participate was in proportion to the number of beds on the respectively ward in relation to the total number of beds on the wards participating. The sample consisted of 631 patients discharged from the hospitals between May 2008 and April 2009 which was 10% of total discharges from the studied wards. A total of 528 patients (83.7%) agreed to participate. Descriptions of the participants are presented in Table 2.

<table>
<thead>
<tr>
<th>Table 2. Description of the participants</th>
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<tbody>
<tr>
<td>Paper I</td>
</tr>
<tr>
<td>n=468</td>
</tr>
<tr>
<td>Sex: n (%)</td>
</tr>
<tr>
<td>Men 216 (46)</td>
</tr>
<tr>
<td>Women 252 (54)</td>
</tr>
<tr>
<td>Age M/SD 57.1/16.3</td>
</tr>
<tr>
<td>Education level n (%)</td>
</tr>
<tr>
<td>Compulsory school 145 (31)</td>
</tr>
<tr>
<td>Upper secondary school 190 (40.6)</td>
</tr>
<tr>
<td>University 133 (28.4)</td>
</tr>
<tr>
<td>Admission type n (%)</td>
</tr>
<tr>
<td>Emergency 243 (52)</td>
</tr>
<tr>
<td>Scheduled 225 (48)</td>
</tr>
<tr>
<td>Previous admittance to hospital within the last month n (%)</td>
</tr>
<tr>
<td>Yes 98 (21)</td>
</tr>
<tr>
<td>No 370 (79)</td>
</tr>
<tr>
<td>Inpatient stay M/SD 5.4/7.3</td>
</tr>
<tr>
<td>Ward type n (%)</td>
</tr>
<tr>
<td>Medical 307 (65.6)</td>
</tr>
<tr>
<td>Surgical 137 (29.3)</td>
</tr>
<tr>
<td>Medical/surgical 24 (5.1)</td>
</tr>
</tbody>
</table>
**Data collection – the questionnaire**

A questionnaire based on the theoretical framework of the relationship between quality of care from a patient perspective and patient satisfaction drawn up by Larsson and Wilde-Larsson (2010) was used, together with data from ward statistics.

The questionnaire (a total of 101 items) comprised four instruments and was used together with questions regarding socio-demographic data, and health conditions that previous research had shown to reflect accurately patient satisfaction and their perceptions of quality of care. The four instruments used were: *Quality from Patients’ Perspective (QPP)*; *Sense of Coherence scale (SOC)*; *Big Five personality traits – the Single-Item Measures of Personality (SIMP)*; and *Emotional Stress Reaction Questionnaire (ESRQ)*. Figure 4 gives a description of the content of the questionnaire in relation to the theoretical framework. The Roman numerals show in what paper the different aspects of the questionnaire and ward statistics (see pages 31-34) are represented.
Figure 4. Description of the questionnaire and the ward statistics in relation to the theoretical framework (Larsson & Wilde-Larsson, 2010) and the respectively three papers (I,II,III).

Key: ¹Also analysed as an external objective care condition (II,III); ²Also analysed as an external objective care condition (II); ³Also analysed as an external objective care condition (I).
Person-related conditions

Questions about socio-demographic aspects comprised three items: age, sex, and education (compulsory school, upper secondary school or university). Health condition aspects comprised five items: the patients’ self-reported health condition in response to: ‘How would you describe your present physical health condition?’ and ‘How would you describe your present psychological well-being?’, using a five-point scale ranging from 1 (‘Very poor’) to 5 (‘Very good’) (Wilde Larsson & Larsson, 2002). Pain was measured with three items from the Brief Pain Inventory (BPI) (Cleeland & Ryan, 1994). The BPI rates the severity or the intensity of pain: ‘How would you describe your pain at its worst?’, ‘How would you describe your average pain?’ and ‘How would you describe your pain at the moment?’ using a numeric rating scale (NRS) (Huskisson, 1974) ranging from 0 (‘No pain’) to 10 (‘Worst pain imaginable’). In addition, questions about conditions in relation to hospital stay (four items) were: previous admittance (yes/no), admission type (scheduled/by emergency), changing wards (in number), and inpatient stay.

The Sense of Coherence scale (SOC) was used to measure patients’ life orientations. The scale is an operationalization of the core construct, the sense of coherence, in the salutogenic theoretical model designed to explain the maintenance or improvement of the patient’s location on a health ease/dis-ease continuum. Questions comprise comprehensibility, manageability and meaningfulness (Antonovsky, 1987, 1993). The 13-item version (Guldvog, 1996) was used. One example is: ‘Do you have the feeling that you don’t really care about what goes on around you?’ with a seven-point response scale ranging from 1 (‘Very seldom or never’) to 7 (‘Very often’). The SOC index was calculated by adding each item’s score, ranging from 13 to 91. High scores represent a strong SOC.

Big Five personality traits (Big Five) is a descriptive model which measures five broad dimensions of personality (Woods & Hampton, 2005). There is consensus that the five-factor solution consisting of extraversion, agreeableness, conscientiousness, emotional stability and openness are the dimensions necessary to provide a complete description of personality. Each dimension includes more specific traits. Single-Item Measures of Personality (SIMPs) developed by Woods and Hampton (2005) were used in the thesis. The instrument consists of five items, one for each dimension. The patients are asked to circle one point on each scale to indicate how much the description fits them. One example is: ‘How much does each description sound like you?’
with a nine-point bipolar response scale from 'Someone who is sensitive and excitable, and can be tense' to 'Someone who is relaxed, unemotional, rarely gets irritated and seldom feels blue'. The scores show each personality trait.

*Patients' commitment* was measured using Wilde Larsson and Larsson’s (2002) questionnaire *Quality from Patient's Perspective (QPP)*. The questionnaire consists of four dimensions with 24 items: (a) The medical-technical competence of caregivers (four items), which comprised personnel qualifications, knowledge and proficiency, and their ability to make a correct diagnosis and give necessary treatment. (b) The identity-oriented approach of the caregivers (12 items), which included emphatic skills of caregivers when meeting the patient as a unique person and the ability to show interest in and a commitment to the persons’ needs and wishes. (c) The physical-technical conditions of the care organisation (three items), which considered such aspects as whether the environment was clean, comfortable and safe and the availability of medical-technical equipment. (d) The sociocultural atmosphere of the care organisation (five items), which measured how closely the surroundings resembled a home, rather than an institution, where patients’ needs and wishes had priority over fixed routines (Wilde, et al., 1994; Larsson, et al., 1998; Wilde Larsson & Larsson, 2002). In addition, one item about the information concerning the effects and use of medicines was added to the identity-oriented approach dimension in this thesis.

Each item was evaluated by perceived reality (PR) and subjective importance (SI). The subjective importance describes the patients’ preferences, that is, their commitments. The items were related to sentences that start with: “This is how important it was for me to have ....” A four-point response scale ranging from 1 ('Of no importance') to 4 ('Of the very highest importance') was used. Each item also had a ‘Not applicable’ response alternative. An index was calculated for each dimension by adding the item scores in that dimension and dividing by the number of items in it.

*External objective conditions*

Data on external objective conditions was collected from ward statistics. The questions were based on results from previous quality care research and the researchers experiences: ‘What type of ward is this – medical, surgical, medical/surgical?’; ‘How many registered nurses (RNs) are working on the
ward – measured in number of heads and in full-time equivalents?; ‘How many assistant nurses are working on the ward – measured in number of heads and in full-time equivalents?’; ‘How is nursing care organised (model of nursing care) on the ward – primary nursing, team nursing, specialist nursing, or mixed team nursing/specialist nursing?’; ‘How many beds are on the ward?’; and ‘Frequency of over-occupancy – Never, Seldom, Weekly, Always?’

Appraisal and coping processes

Patients’ appraisal and coping processes were measured using the PR of quality of care (QPP) (Wilde, et al., 1994; Larsson, et al., 1998; Wilde Larsson & Larsson, 2002). The PR describes the patients’ perception of the actual care received. The items were related to the sentence: ‘This is what I experienced …’ (for example, ‘I had good opportunity to participate in decisions regarding my medical care’). A four-point response scale ranging from 1 (‘Do not agree at all’) to 4 (‘Completely agree’) was used for responses. Each item also had a ‘Not applicable’ response alternative. An index was calculated for each dimension by adding the item scores in that dimension and dividing by the number of items in it.

Emotional reactions

Patient satisfaction was measured with the Emotional Stress Reaction Questionnaire (ESRQ) (Larsson, 1987; Larsson & Wilde-Larsson, 2010). The ESRQ is based on the assumptions that: a) emotions in a given situation show how the situation is interpreted cognitively, b) the cognitive interpretation indicates the strength of the stress reaction in a given situation, and c) the strength of the reaction to stress in a given situation as measured with a psychological instrument predicts the person’s potential for psychological coping in this situation.

The ESRQ instrument consists of 30 emotion words that are positively, negatively or neutrally loaded. In this thesis, 27 of the words which are positively (10) or negatively (17) loaded were used, and measured the following cognitive appraisal categories: benign-positive (six words), challenge (four words), fear (nine words), shame (four words) and anger (four words). The respondents were asked to indicate on a four-point Likert-type scale: ‘The word does not correspond to how I feel right now’ (1); ‘The word partly corresponds
to how I feel right now’ (2); ‘The word fairly well corresponds to how I feel right now’ (3); ‘The word completely corresponds to how I feel right now’ (4) (Larsson and Wilde-Larsson, 2010). The negative emotions sum was calculated by adding the item scores of the 17 items reflecting the appraisal categories fear, shame and anger (e.g. “worried”, “ashamed”, “furious”). The positive emotions sum was calculated by adding the items scores on the 10 items reflecting benign-positive and challenge appraisals (e.g. “hopeful”, “concentrated”). An ESRQ score was computed by subtracting the negative emotions sum of scores from the positive emotions sum of scores. The ESRQ score could range from -58 (maximum dominance of negative emotions) to +23 (maximum dominance of positive emotions). High positive scores represent a potential positive coping in a care situation and high patient satisfaction (Larsson & Wilde-Larsson, 2010).

Instrument translation process and pilot study

The SIMP and the ESRQ were translated from Swedish to Norwegian, while three questions concerning pain were translated from English into Norwegian. When instruments are translated into another language, it is important that the content of the items is relevant in the new culture, and to ensure semantic equivalence, that is, the meaning of each item remains the same after translation (Polit & Beck, 2012). The ‘back-translation’ method is used when scales are to be translated to different cultures (Brislin, 1970; Yu, Lee, & Woo, 2004). The translation was performed in three steps following the ‘back-translation’ method (Brislin, 1970): 1) Translation from Swedish into Norwegian was done by a registered nurse (RN) who speaks and writes both Swedish and Norwegian and who knows the field of healthcare well. The translation was then analysed to identify vagueness in the language by two teachers of nursing who had not seen the original versions of the instruments. 2) The Norwegian versions were translated into Swedish by another RN who had not seen the original instruments and who knew the field of healthcare well. 3) Finally, the Norwegian and the Swedish versions were analysed by the author and the supervisors to identify differences that had arisen in the different steps. Some minor differences were found, and a Swedish-Norwegian-Swedish dictionary was used to clarify the meanings of the words. A good match was achieved. Since the SIMP was originally written in English, the Norwegian version was
translated into English by an English-speaking and -writing teacher and compared to the original version to ensure preservation of the contents of the original items. The same procedure was carried out for the three pain questions, but in this case by two RNs who spoke and wrote both English and Norwegian. No differences were found.

A pilot study with ten patients was conducted to assess the adequacy, appropriateness and quality of the questionnaire. Minor adjustments in the layout of the questionnaire were made, based on feedback from the patients in the pilot study.

**Validity and reliability of the instruments**

Validity refers to the degree to which an instrument measures what it is intended to measure, and comprises face, content, criterion-related and construct validity which include convergent and discriminant validity (Polit & Beck, 2012). Reliability concerns the degree of consistency with which an instrument measures a certain attribute (Polit & Beck, 2012).

The QPP model was developed using a grounded theory approach (Wilde, et al., 1993) and operationalized into the QPP questionnaire using a conventional factor analytical approach (Wilde, et al., 1994). How to obtain content and construct validity is carefully described. Items were first designed based on the wording from patient interviews when the quality-of-care model was developed. Experts from various health professions were subsequently invited to validate the content of the items, after which voluntarily recruited patients were asked to rate the clarity and comprehensibility of the items. Fifty-six items remained in the final questionnaire. The QPP was refined in 1998 using structural equation modelling (Larsson, et al., 1998) and further developed into a short version of 24 items (Wilde Larsson & Larsson, 2002). The criterion-related validity was tested by examining the correlation between the factor scores, and self-reported health and well-being, and the discriminant validity was tested by comparing subgroups based on such factors as sex, age, and education (Wilde, et al., 1994).
The reliability of the QPP has been measured in different patient populations and the instrument is widely used in both research and clinical quality improvement work. The PR dimensions’ alpha have varied between 0.65 and 0.91, and the SI dimensions’ alpha between 0.65 and 0.90 (Wilde Larsson & Larsson, 2002; Franzén, et al., 2008). The corresponding Cronbach’s alpha values in this thesis for the PR dimensions were: 0.62 for medical-technical competence, 0.87 for identity-oriented approach, 0.54 for physical-technical conditions, and 0.73 for socio-cultural atmosphere. The alpha values for the SI dimensions were: 0.63 for medical-technical competence, 0.93 for identity-oriented approach, 0.59 for physical-technical conditions, and 0.73 for socio-cultural atmosphere.

A 29-item semantic differential Sense of Coherence scale was first designed guided by Guttman’s facet theory (Antonovsky, 1987). A 13-item version was also developed. High levels of face, content, and construct validity are shown in studies (Antonovsky, 1993). Criterion-related validity was examined by determine the correlations between the SOC and measures in four domains: a global orientation to oneself and one’s environment; stressors; health, illness and wellbeing; and attitudes and behaviour. Most measures were statistically significantly correlated (Antonovsky, 1993).

Cronbach’s alpha measured in 127 studies using SOC-13 published between 1992 and 2003 ranged from 0.70 to 0.92 (Eriksson & Lindström, 2005). Test-retest correlations showed considerable stability and ranged from 0.69 to 0.78 (one year), 0.64 (three years), 0.42 to 0.45 (four years), 0.59 to 0.67 (five years) to 0.54 (10 years) (Eriksson & Lindström, 2005). The Cronbach’s alpha coefficient for SOC in this thesis was 0.75.

The consensus among those studying trait theory, is that a five-factor solution provides a complete description of personality (Woods & Hampton, 2005). The SIMP model correlates well with external criterion variables like perceived stress and sociability, similar to the patterns observed for the longer measures of personality. One disadvantage is the risk of not being able to discriminate among individuals on any single dimension. Multiple-item scales permit finer-grade distinctions (Woods & Hampton, 2005). SIMP has however, demonstrated reasonable good convergence with the longer-term measures of the Big Five Inventory and Ten-Item Personality Inventory, with an overall value of $r = 0.61$. This is comparable with the correlations between the longer-
term measures themselves. Mean correlation ranged between 0.60 and 0.78 for the five items. SIMP was compared closely with TIPI, the ten-point scale. The results were remarkably similar and make the SIMPs a valid measure of the Big Five (Woods & Hampton, 2005).

The advantage of single-item measures of personality like SIMP, lies in their simplicity and the way in which they save the respondent from using too much of his or her time and at the same time avoiding boredom and tiredness. The disadvantages lie in the failure of their psychometric properties to provide estimates of internal reliability (Woods & Hampton, 2005). Test-retest reliability at four time points was compared with the longer-term scales. The longer-term measures demonstrated slightly higher values, but the SIMP’s reliabilities were acceptable and consistent over the various time intervals (Woods & Hampton, 2005).

The ESRQ is based on a theoretical framework (Larsson, 1987), and has been developed further into a care-context-adapted version by using explorative factor analysis, and structural equation modeling. Further refinement has included testing the statistical goodness-of-fit between the model and the empirical outcome, which was acceptable (Larsson & Wilde-Larsson, 2010). Criterion-related validity was tested by determining the correlation between the ESRQ and a self-reported health scale. Discriminant validity was tested by comparing the subgroups sex, nationality and age (Larsson & Wilde-Larsson, 2010).

The reported Chronbach’s alpha values for the ESRQ range from 0.66 to 0.81 (Larsson, 1987). The ESRQ consists of seven scales and one total scale and the alpha values of the scales when tested in a care context ranged from 0.76 to 0.92 (Larsson & Wilde-Larsson, 2010). The Cronbach’s alpha coefficient for ESRQ total in this thesis was 0.82.

**Procedure**

The author conducted one meeting on each of the 12 wards participating (with the exception of one ward) to inform the head nurses and the ward personnel about the aim and procedures of the study before the data collection period
started. Geographic distance to the twelfth ward made it more rational to inform the head nurse by telephone. This head nurse informed the ward personnel.

One RN on each ward working day-time was given further written and verbal information about the study and asked by the head nurse to be responsible for giving information and questionnaires to the patients. The RNs informed the personnel on their ward who had not been able to participate in the first meeting about the study. In addition, the day of a patient’s discharge, or the day before, the RN gave patients who satisfied the inclusion criteria both oral and written information about the study. Patients who agreed to take part in the study received the questionnaire, and were encouraged to answer the questionnaire in private. Patients were instructed to return their completed questionnaire before their discharge, together with their written, informed consent, in a sealed envelope to the responsible RN.

Data was not collected during summer and Christmas holidays because of wards having been merged. The length of the data collection period depended on the number of patients on the wards, and the patient flow. Further how busy the responsible RNs were which determined the time they had available to give information about the study and deliver questionnaires to the patients also affected the length of the data collection period. The length ranged from 12 to 35 weeks, and most wards finished the data collection period in 21 weeks.

The sealed envelopes were collected by the author every fourteenth day. The author either collected the envelopes in person (eight wards) or received them by mail due to geographic distance (four wards). The questionnaires were coded and a list with the patients’ names and a number corresponding to the coded questionnaire was made. The code-list, the written consents and the questionnaires were kept separately and locked away safely. The patients’ informed consent gave the researcher permission to contact the patients after discharge from hospital to ask for their participation in the qualitative study.

Data on external objective care conditions were collected from ward statistics by the head nurse on each ward. The head nurses received the questions by e-mail. The author received the data by phone 3 to 4 days later, at the end or shortly after the data collection period among the patients on each ward had
ended. These data were related to each patient (N=528) staying on the 12 wards.

**Statistical analysis**

The programs SPSS version 17.0 (I, II) and PASW Statistics 18.0 (III) for Windows were used, and statistical significance was assumed at $p < .05$. The statistical analyses used in Papers I-III are shown in Table 3.

<table>
<thead>
<tr>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequencies</td>
<td>Frequencies</td>
<td>Frequencies</td>
</tr>
<tr>
<td>Percent</td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>Standard deviation</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>Cronbach’s alpha</td>
<td>Cronbach’s alpha</td>
<td>Cronbach’s alpha</td>
</tr>
<tr>
<td>coefficient</td>
<td>coefficient</td>
<td>coefficient</td>
</tr>
<tr>
<td>Chi-square tests</td>
<td>Chi-square tests</td>
<td>One-way between-groups</td>
</tr>
<tr>
<td>Student’s t-tests</td>
<td>Student’s t-tests</td>
<td>Student’s t-tests</td>
</tr>
<tr>
<td>Pearson product-moment</td>
<td>Pearson product-moment</td>
<td></td>
</tr>
<tr>
<td>coefficient (r)</td>
<td></td>
<td>One-way multivariate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>analysis of variance</td>
</tr>
<tr>
<td></td>
<td>Multivariate</td>
<td>(MANOVA) with the post-hoc</td>
</tr>
<tr>
<td></td>
<td>general linear</td>
<td>test Tukey</td>
</tr>
<tr>
<td></td>
<td>model (GLM)</td>
<td>analysis of variance</td>
</tr>
<tr>
<td></td>
<td>Rao’s F-approximation of Wilks’ lambda</td>
<td>One-way between-groups</td>
</tr>
<tr>
<td>Sequential multiple</td>
<td></td>
<td>Student’s t-tests</td>
</tr>
<tr>
<td>regression analysis</td>
<td></td>
<td>Sequential multiple regression analysis (MANOVA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>on Z-standardisation using</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ward’s method with squared Euclidean distance</td>
</tr>
</tbody>
</table>

Descriptive statistics with frequencies, percent, range, mean and standard deviation were used to describe the study sample, and the Cronbach’s alpha coefficient assessed internal consistency of the instruments (Hair, Black, Babin, & Anderson, 2010). Chi-square tests were used to compare the study sample with the total number of patients and the excluded patients and to compare the three clusters on the categorical variables (Tabachnick & Fidell, 2007). Student’s t-tests were used to compare the study sample with the total number of patients and the excluded
patients (Tabachnick & Fidell, 2007). The Pearson product-moment coefficient (r) was used to measure correlations between independent variables and the dependent variable, and correlation between the dimensions in the multidimensional variable PR of quality of care (Hair, et al., 2010).

One-way between-groups ANOVA with the post-hoc test Tukey was used to compare the three clusters on the cluster variables ESRQ and PR of quality of care (Hair, et al., 2010). One-way multivariate analysis of variance (MANOVA) with the post-hoc test Tukey was used to compare the clusters on continuous variables (Hair, et al., 2010). Multivariate general linear models (GLM) were used (Altman, 1999; Tabachnick & Fidell, 2007) for analysis because the dependent variable (PR of quality of care) was multivariate. Rao’s F-approximation of Wilks’ lambda (Rao, 1952; Field, 2005) was used to test how much the independent variables in the model predicted the dependent variable compared to the level of inaccuracy of the model. Sequential multiple regression analysis (Tabachnick & Fidell, 2007) was run in three steps to explore possible predictors of patient satisfaction and how strong the impact of each step was. Hierarchical cluster analysis on Z-standardisation of the variables (Hair, et al., 2010), using Ward’s method with squared Euclidean distance as the similarity measure (Everitt, Landau, Leese, & Stahl, 2011; Hair, et al., 2010), was used to identify clusters of patients with high homogeneity within the clusters and high heterogeneity between the clusters on the cluster variables patient satisfaction and PR of quality of care.

**Drop-out analysis**

Age, sex, average duration of patients’ stay and ward type were variables used to compare the participants and the patients excluded from the analyses (I-III). Further, data about patients’ age, sex and average duration of patients’ stay for all patients staying on the wards during the data collection period were collected from ward statistics by the head nurses. These data, including ward type, were used to compare the participants with all patients on the wards to be able to address missing data challenges (I-III). There were no statistically significant differences regarding sex, length of stay or ward type between the participants and the excluded patients, nor between the participants and all patients on the wards (I-III). In addition, in Paper II, no statistically significant differences
were found between the participants, the excluded patients and all patients staying on the wards regarding RN and assistant nursing full-time equivalents, nursing care model, frequency of over-occupancy and admission type. The participants were, however, younger than the excluded patients (Paper I: $t = 3.801, p < .001$; Paper II: $t = 8.344, p = .0001$; Paper III: $t = 7.859, p = .0001$), and also younger than all patients (Paper I: $t = 15.316, p < .042$; Paper II: $t = 3.374, p = .0005$; Paper III: $t = 3.381, p < .005$) staying on the wards during the study period.

**The qualitative study (Paper IV)**

**Informants and procedure**

Together with the questionnaire the patients (N=528) from the quantitative study received an enquiry asking for their consent for the author to contact them at home for an interview. They were informed that about 20 discharged patients would be asked to participate in the qualitative study. All 528 patients agreed to be contacted and asked for an interview.

A strategic sample was drawn, based on the variation of the combination of the patients’ ratings on their perceptions of quality of care (PR) and their ratings of their satisfaction (ESRQ) in the questionnaire. The inclusion criteria were that the informants had been discharged from hospital directly to their homes, and that they had not been hospitalised in the period between completing the questionnaire and attending the interview. A total of 31 patients from the quantitative study were invited to participate in the qualitative study. They received a letter with information about the interview and a form of consent two to three weeks after discharge from hospital. One patient of the 31 had passed away since discharge, five had been hospitalised since they completed the questionnaire, and one had moved abroad for the winter. Two declined to participate because of poor health. Twenty-two informants agreed to participate.

Among the informants there were 11 men and 11 women. Age ranged from 24 to 81 years, with a mean age of 57 years. Concerning education, eight informants had a university degree, 11 had finished upper secondary school, while three had finished compulsory school. Thirteen of the informants were
admitted to hospital after scheduled admission and nine after emergency admission. Regarding distribution of informants on clinics, 12 stayed on medical wards, nine on surgical wards, and one on a medical-surgical ward. The author contacted the informants by phone after receiving the letter of consent, and booked a time and location for the interview. The informants decided where the interview should take place. The interviews took place in the informants' homes (six), at their work (three), in cafés (eight), in a pub (one), in a meeting room at the author’s workplace (one), and in meeting rooms at the hospitals (three). When public places were chosen, the informant and the author were seated so that other people could not hear the conversation, and the interviews were conducted during the morning when few people were visiting. The interviews took place 3-8 weeks after discharge from hospital, from January to June 2009. The interviews were recorded.

Data collection – qualitative interviews

The individual interviews were conducted by the author. Two open-ended questions were asked: ‘Can you tell me about your experiences during your hospital stay?’ and ‘Can you tell me about your feelings at the time of your discharge from hospital?’ Follow-up questions were based on the informants’ answers regarding their feelings, in addition to the question: ‘What do you think is important for your feelings concerning your hospital stay?’ The interviews lasted from 25 to 120 minutes (average duration 50 minutes).

Content analysis

Content analysis is described as a careful, detailed, systematic examination and interpretation of a particular text to identify patterns, themes, biases and meaning (Berg, 2009). In this thesis conventional content analysis was used following the steps proposed by Hsieh and Shannon (2005). After the interviews, the author made notes to capture elements of the setting and of the informant’s emotional responses. The interviews were transcribed verbatim by the author on the next day. The transcripts were then read and compared with the digital recorded interviews in order to check the accuracy of the text and to
capture the content related to the aim of the study. The words that appeared to capture key thoughts were highlighted. Based on the highlighted words, labels for codes emerged. The codes were compared based on similarities and differences, and sorted into subcategories and categories, a process that went back and forth. The codes, the subcategories and the categories were critically investigated and discussed among the researchers until agreement was reached. Quotations were selected to support the description of the subcategories and the categories, and to secure trustworthiness.

**Trustworthiness**

A qualitative descriptive design with a conventional content analysis approach was used to describe conditions of importance for patients’ satisfaction in relation to experiences regarding hospital stay. The method is suitable because it reflects human communication and preserves information from the original material (Hsieh & Shannon, 2005). Credibility, transferability, dependability, and confirmability describe aspects of trustworthiness in qualitative studies (Lincoln & Guba, 1985).

Credibility was achieved by describing the data collection and the steps of the conventional content analysis. The interviews were carried out in places and at times chosen by the informants. The word ‘feelings’ was used instead of ‘emotions’ during the interview, because it is more common in everyday speech in Norway. An atmosphere of trust between the informant and the author was sought. The length of the interviews varied. Some informants managed to share experiences and feelings connected to those experiences in a short period of time. Clarifying questions were asked to test for misunderstanding. The researchers were aware of that the analysis could be influenced by the theoretical framework of patient satisfaction (Larsson & Wilde-Larsson, 2010), and did the utmost to let the informant’s statements govern each step of the analysis in addition to reflecting and discussing the subject.

The categories identified in this thesis could be transferable to similar groups of patients and contexts. The informants had been patients on medical and surgical wards or on a medical/surgical ward. Dependability was ensured by using a digital recorder, and the interviews were transcribed verbatim to be able
to verify the results. The informants were asked similar questions in the same way, and the steps of content analysis were followed and described.

Finally, confirmability was achieved by the use of systematic data collection and systematic conventional content analysis. The author and the research group read the interviews separately and the author first analysed the interviews. Thereafter the codes, the subcategories and categories were discussed by the author and the research group until agreement was reached.

**Ethical considerations**

The studies were approved by the Regional Committee for Medical Research Ethics in East Norway, and by the Norwegian Social Science Data Services. The studies were also approved by the head administration of the hospitals taking part. Each study was conducted according to Ethical Guidelines for Nursing Research in the Nordic Countries (Northern Nurses Federation, 2003). Potential ethical issues concerning the principles of autonomy, the principles of beneficence, the principles of non-maleficence and the principle of justice (Beauchamp & Childress, 2001; Williams, 2008) were considered when the thesis was planned and during the research period.

In the quantitative study (I-III), one RN was made responsible for distributing both the written and the oral information to all possible participants. The author informed each RN separately before the study started, and did the utmost to give the same kind of information to all 12 RNs. Information regarding voluntary participation was emphasised.

The written information included a short rationale, aim of the studies, methods, responsible researcher and contact person (name and telephone number listed), together with information that participation was voluntary and that participants could withdraw from the study at any time without any consequences. Confidentiality was also described along with one letter of consent to sign to participate in the quantitative study, and another letter of consent to sign if they agreed to receive a written request to participate in the qualitative study after discharge.
Patients in hospital are vulnerable persons because of their illness. It was therefore important that the responsible RN on each ward assessed whether the patient’s mental and physical health was in a condition that made it ethically justifiable to ask the patient to participate. The RNs have both competence and knowledge to do this assessment. The patients are also vulnerable because they are dependent on the personnel working on the wards. They were asked to answer the questionnaire while they were still hospitalised. Some patients might feel bound to answer the questionnaire, because they were afraid of not receiving good care if they refused. It was therefore of utmost importance that the responsible RN emphasised, when giving information, that participation or no participation in the study would have no consequences for the patient’s healthcare or treatment.

The questionnaire itself might be disturbing to the patients, because of its content. The patients were asked to answer questions about their physical health and psychological well-being in addition to questions about personality, and how they think they manage difficult situations. No negative reactions from patients taking part in the study were reported.

The assessment was carried out and the verbal information was given by 12 different RNs, and thus some differences in sampling were unavoidable. The patients may also have felt bound to answer the questions more positively since they still were inpatients. To minimize this risk, the patients were encouraged to answer the questionnaire in private, and they were also informed that only the author was able to see their answers, and their letters of consent. The questionnaire was to be put into a sealed envelope before giving it to the RN on the ward. The questionnaires were punched by the author, and the code-list which could link the questionnaire to the relevant patient was kept locked away in the author’s office.

In the information letter, the patients were also informed that approximately 20 patients would be contacted after discharge and asked to take part in a qualitative interview study (IV). When they were contacted, they received an information letter about the interview. When the researcher received the letter of consent, the patients were contacted by telephone to make an appointment for the interview.
The interview itself might be difficult for the person, depending on factors such as the persons’ perception of hospital care, and their health outcome. The informants chose the time and place for the interview, so that they could feel as comfortable as possible during it. No names were used during the interviews, which were recorded. During the interview the author was aware of possible physical and psychological reactions from the informants. Sometimes the author asked the participant if he/she wanted a break, but none of the interviews were interrupted. Some of the informants said they had looked forward to the interview, so that they could tell their stories from the hospital. Some of the informants also expressed hopes that their stories would make a difference, and increase care quality for future patients. The interviews were transcribed by the author. The tapes and the transcriptions were kept safely locked away in the author’s office. The interviews were erased after being transcribed. The personal computer used in this study was locked in the author’s office, and only the author had access to it.
Main findings

The main findings from the quantitative (I-III) and the qualitative (IV) studies are presented followed by a summary of the results and a comprehensive understanding of these results. The findings are presented in the following order: Patients’ perceptions of quality of care (PR) (I-III); patient satisfaction (II, III); predictors of patients’ perception of quality of care (PR) (I); predictors of patient satisfaction (II); patient profiles regarding patient satisfaction and perceptions of quality of care (PR), and their characteristics (III); and patients’ satisfaction in relation to hospital stay (IV).

Patients’ perceptions of quality of care (PR) (Papers I-III)

The mean scores of patients’ perceptions of quality of care (PR) presented in Table 4 are based on different numbers of patients in the three papers. Three clusters of patients were identified in Paper III, and the range of mean scores is presented.

<table>
<thead>
<tr>
<th>Quality of care – PR</th>
<th>Paper I (n=468)</th>
<th>Paper II (n=373)</th>
<th>Paper III (n=364)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical-technical competence¹</td>
<td>3.53/0.56</td>
<td>3.48/0.58</td>
<td>2.43/0.51 - 3.84/0.24</td>
</tr>
<tr>
<td>Identity-oriented approach¹</td>
<td>3.49/0.53</td>
<td>3.43/0.56</td>
<td>2.53/0.51 - 3.78/0.26</td>
</tr>
<tr>
<td>Physical-technical conditions¹</td>
<td>3.52/0.60</td>
<td>3.47/0.62</td>
<td>2.72/0.72 - 3.80/0.34</td>
</tr>
<tr>
<td>Socio-cultural atmosphere¹</td>
<td>3.52/0.56</td>
<td>3.49/0.57</td>
<td>2.82/0.53 - 3.88/0.21</td>
</tr>
</tbody>
</table>

Key: *Scores could range from 1 (lowest quality rating) to 4 (highest quality rating)

The mean scores of PR of quality of care varied between 3.43 – 3.53 when the whole patient group was studied, and between 2.43 – 3.88 if clusters of patients were studied.
Patient satisfaction (Papers II and III)

The mean scores of patient satisfaction (ESRQ) in the two papers (Table 5) are based on different numbers of respondents. Three clusters were identified in Paper III, and the range of mean scores is presented.

Table 5. Patient satisfaction (ESRQ) in Papers II and III

<table>
<thead>
<tr>
<th></th>
<th>Paper II</th>
<th>Paper III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=373</td>
<td>n=364</td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td>M/SD</td>
<td>M/SD</td>
</tr>
<tr>
<td>ESRQ-score¹</td>
<td>+3.44/12.46</td>
<td>-2.36/12.92 – +8.17/10.4</td>
</tr>
</tbody>
</table>

Key: ¹Scores could range from -58 (maximum dominance of negative emotions) to +23 (maximum dominance of positive emotions).

The mean scores of patient satisfaction was +3.44 when the whole patient group was studied, and between -2.36 and +8.17 when clusters of patients were studied.

Predictors of patients' perceptions of quality of care (PR) (Paper I)

When the impact of the combination of person-related and external objective care conditions was explored, five conditions were found to predict patients’ perceptions of quality of care (PR – the dependent variable) (Table 6).

Table 6. The combined impact of person-related and external objective care conditions on the four dimensions of patients' perceptions of quality of care (PR) (n = 468)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Wilks’ lambda</th>
<th>Rao’s F</th>
<th>Hypothesis Df</th>
<th>Error Df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person-related conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>.949</td>
<td>6.104</td>
<td>4.00</td>
<td>451.00</td>
<td>.000</td>
</tr>
<tr>
<td>Age</td>
<td>.931</td>
<td>8.297</td>
<td>4.00</td>
<td>451.00</td>
<td>.000</td>
</tr>
<tr>
<td>Self-reported psychological well-being</td>
<td>.951</td>
<td>5.750</td>
<td>4.00</td>
<td>451.00</td>
<td>.000</td>
</tr>
<tr>
<td>External objective care conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RNs (headcount)</td>
<td>.975</td>
<td>2.924</td>
<td>4.00</td>
<td>451.00</td>
<td>.021</td>
</tr>
<tr>
<td>Over-occupancy</td>
<td>.944</td>
<td>2.190</td>
<td>12.00</td>
<td>1193.525</td>
<td>.010</td>
</tr>
</tbody>
</table>

Final model Wilks’ lambda: Λ = 0.454. Level of significance: p < 0.05
The Table shows that three person-related conditions: sex, age, and self-reported psychological well-being, and two external objective care conditions: RNs (headcount) and frequency of over-occupancy, explained 55% of the variation of patients’ perception of quality of care (PR) (Wilks’ lambda at $\Lambda = 0.454$).

**Predictors of patient satisfaction (Paper II)**

The impact of person-related conditions, external objective care conditions, and quality of care (PR) on patient satisfaction (ESRQ) was explored. The sequential multiple regression analysis showed that the first step (person-related conditions) explained 51.7% of the variance of patient satisfaction. The person-related conditions comprised: socio-demographic aspects (age, sex, education), health condition (physical health, psychological well-being, pain right now, average pain, inpatient stay, sense of coherence), personality (conscientiousness, extraversion, openness, agreeableness, emotional stability), and preferences (the subjective importance-dimensions (SI); medical-technical competence; identity-oriented approach; physical-technical condition; and socio-cultural atmosphere).

The second step explained an additional 2.4% of the variance after controlling for person-related conditions. This step included the external objective care conditions (admission type, over-occupancy, RN full-time equivalents, nursing care model).

The third step explained 0.5% of the variance, that is, the patients’ perceptions of quality of care (the PR-dimensions: medical-technical competence; identity-oriented approach; physical-technical condition; and socio-cultural atmosphere) after controlling for person-related and external objective care conditions. Steps 1 and 2 contributed statistically significantly to patient satisfaction. The total variance of patient satisfaction explained by the model was 54.7%, $F (26, 251) = 11.648, p < .0005$. 
Patient profiles regarding patient satisfaction and perceptions of quality of care (PR), and their characteristics (Paper III)

Three subgroups among 364 respondents with complete answers on patient satisfaction (ESRQ) and perception of quality of care (PR) were identified (Figures 5 and 6). Patients in Cluster A (55.2%) were most satisfied and had best perceptions of quality of care. Patients in Cluster B (30.8%) were less satisfied and had better perceptions. Patients in Cluster C (14.0%) were less satisfied and had the worst perceptions.

Figure 5. Mean scores of patient satisfaction (ESRQ) for the three clusters.

Key: ESRQ scores could range from -58 (maximum dominance of negative emotions) to +23 (maximum dominance of positive emotions).
There were statistically significantly differences between the three clusters regarding person-related and external objective care conditions.

**Person-related conditions:** The patients in Cluster A were older than patients in Clusters B and C, who were the same age. Regarding sex, there were more likely to be women in Cluster A, and men in Cluster C, while the sex was evenly divided in Cluster B. Highest levels of education were found among patients in Cluster C, followed by patients in Cluster B. A low level of education characterizes the patients in Cluster A.

The self-reported psychological well-being was rated higher among patients in Cluster A than among the patients in Clusters B and C. Patients in Cluster C had the lowest score. Patients in Cluster A had the highest scores on SOC, and differed from Clusters B and C.
Concerning subjective importance (the patients’ preferences), the physical-technical conditions and the socio-cultural atmosphere of the care organisation were rated higher among patients in Cluster A than patients in Clusters B and C. Regarding the medical-technical competence and the identity-oriented approach of the caregivers, Cluster A had higher scores than patients in Clusters B and C. In turn, patients in Cluster B scored higher than patients in Cluster C.

External objective care conditions: Patients in Cluster A were likely to have been accommodated on wards with fewer beds and RNs than patients in Clusters B and C. Regarding the model of nursing care, patients in Cluster A received more likely care from RNs working in teams, compared with patients in Cluster C who more likely received primary nursing. Patients in Cluster A most probably stayed on wards with weekly over-occupancy, while patients in Cluster B were on wards that seldom experienced over-occupancy. Concerning admission to hospital, more patients in Cluster A were admitted to hospital by appointment, rather than as emergencies, while both patients in Cluster B and Cluster C were most likely to have been admitted as emergencies.

Patients’ satisfaction in relation to hospital stay (Paper IV)

Four categories emerged during conventional content analysis as important to patient satisfaction: Desire to regain health, Need to be met in a professional way as a unique person, Perspective on life, and Need to have balance between privacy and companionship.

Desire to regain health

This category comprised the treatment and health outcome of the hospitalisation and consisted of three subcategories: waiting for treatment, being cured, and having hopes of being cured. The informants described the period before being admitted to hospital and the outcome of the hospitalisation along a continuum from ‘full recovery of disease’ to ‘never to regain health’. Informants described the period of waiting for treatment as a time of concern, uncertainty, and
feeling of powerlessness. Feelings of relief and happiness occurred when they were finally treated or diagnosed. Some used the expression ‘to be repaired is important’ and emphasised the importance of being cured, even if the healthcare experiences were poor. The transition from being ill to being healthy made them feel energetic and optimistic, but could also make them feel unsure about how to behave after discharge if it happened too fast. Concerns about the reoccurrence of disease were also described. Having hopes of being cured described the importance of receiving treatment when seriously ill. Having an incurable disease and an unsure future were associated with feelings of sadness, worry, and disappointment. Next-of-kin and healthcare personnel were characterized as important supporters, but the incurable illness was something the patients had to face alone in the end, which made the informants feel sadness.

**Need to be met in a professional way as a unique person**

This category comprised the way the informants and their families were met by the healthcare personnel and consisted of two subcategories: need for personalised knowledge and receiving healthcare by competent healthcare personnel. Descriptions of individual care characterized this category. To obtain sufficient individual information to have knowledge of their own health situation and treatment and also information about ward routines were part of the need for personalised knowledge. Feelings of hope and optimism arose when healthcare personnel were honest about the situation, spoke clearly and did not try to hide anything. Continuous information about their health situation was important to feel secure when admitted as an emergency case or when changing wards or hospitals. The opposite led to feelings of insecurity, fear, and irritation. To hear doctors argue made them feel worried, uncertain, powerless, and sad.

Receiving care by competent healthcare personnel comprised being listened to, treated individually and not as one among many. Patients felt foolish when personnel acted as being those who knew best. Denial of mistakes made the informants feel afraid and worried. Healthcare personnel were expected to be competent and have knowledge of their disease, and its consequences and treatment. Feelings of disappointment arose when this expectation was not met. Family members were important parts of informants’ life and disease. Frustration,
anger, and sadness were described when family members were not included in the patients’ treatment.

**Perspective on life**

Perspective on life concerned the patients’ way of handling life and consisted of four subcategories: having an optimistic view, being concerned, taking responsibility for own health, and leaving responsibility for own health to others. Descriptions of how informants handled hospitalisation characterized this category. Having an optimistic view comprised being optimistic, being in a good mood, and believing that everything would be all right. These views created positive feelings, which were claimed as important for getting well, and considered to be a good way of meeting treatment. Being concerned included the belief that hospital was a place to get well, and disappointment occurred when they were not diagnosed and did not get well. In some hospitals, healthcare personnel were known to make mistakes and patients to experience poor quality of care. Surprise and joy followed when no mistakes were made, and the healthcare quality was good. Worries before procedures and medical treatments were expressed. Taking responsibility for own health included such conditions as the need to be in control, and to express one’s wishes. Being able to choose which hospital to go to created feelings of energy and happiness. Leaving responsibility for own health to others concerned times and situations in which informants wanted the healthcare personnel to decide what further action to take. Responsibility was also left to the individual’s faith.

**Need to have balance between privacy and companionship**

The category Need to have balance between privacy and companionship concerned the relationship to fellow patients, and the sharing of accommodation with other patients. Sharing a room was both a strength and a source of distress. The strength was learning from fellow patients with similar diagnosis, sharing a laugh and having a good time. Sharing a room became a source of distress when fellow patients were taken seriously ill, doctor-patient confidentiality was
broken, and the toilets and baths had poor hygienic conditions, or they had to wait for their turn to go there. Feelings of sadness and irritation arose.

**Summary of results and comprehensive understanding**

The overall aim of this thesis was to describe and explore relationships between person-related conditions, external objective care conditions, patients’ perceptions of quality of care, and patient satisfaction with care in hospital.

Patients’ perceptions of quality of care (PR) and patient satisfaction varied from lower to higher for the patients studied in this thesis, depending on whether all patients or clusters of patients were studied (I, II, III). Studying clusters of patients regarding PR of quality of care and patient satisfaction enabled a more nuanced picture to emerge (III).

The theoretical basis of this thesis is the theoretical model of quality of care from the patients’ perspective (Wilde, et al., 1993), and the theoretical framework of patient satisfaction (Larsson & Wilde-Larsson, 2010). Just as Larsson and Wilde-Larsson’s framework, this thesis found that conditions within person-related conditions had an impact on patients’ perceptions of quality of care and on patient satisfaction. Further, that external objective care conditions had an impact on patients’ perceptions of quality of care and on patient satisfaction. The combination of the person-related conditions (sex, age, and psychological well-being), and the external objective care conditions (RNs (headcount) and over-occupancy) explained 55% of patients’ perceptions of quality of care (I).

Furthermore, 54.7% of the variance of patient satisfaction was explained by variables within person-related conditions (psychological well-being, pain right now, SOC, and educational level), external objective care conditions (admission type) and patients’ perceptions of quality of care (PR) (II). The person-related conditions had strongest impact, explaining 51.7% of patient satisfaction.

Three clusters of patients emerged from analysis of the variables patients’ perceptions of quality of care (PR) and patient satisfaction (ESRQ) (III). One group consisted of patients who were most satisfied and had best perceptions
of quality of care; a second group of patients who were less satisfied and had better perceptions of quality of care, and a third group of patients who were less satisfied and had the worst perceptions of quality of care. Conditions that distinguished the three groups were the person-related conditions: sex, age, education level, self-reported psychological well-being, SOC, and the four dimensions of subjective importance of quality of care (SI); and the external objective care conditions: RNs (full-time equivalents), bed numbers, model of nursing care, over-occupancy, and admission type.

A deeper understanding of the theoretical model of quality of care from a patient's perspective and the theoretical framework of patient satisfaction was achieved by patients’ descriptions of patient satisfaction in relation to their experiences with hospital stay (IV). ‘Desire to regain health’ described the patients’ health problems and their hopes of being cured, and can relate to the medical-technical condition of the model of quality of care. ‘Need to be met in a professional way as a unique person’ described the patients’ need for personalised care by competent personnel, and is in line with the identity-oriented approach and medical-technical condition of the model of quality of care. ‘Perspective on life’ described how patients’ view of life influences hospital stay. The first three categories may all be included in the person-related conditions in the theoretical framework of patient satisfaction. ‘Need for balance between privacy and companionship’ described the patients’ need for self-chosen socializing, and can be related to the physical-technical conditions and the socio-cultural atmosphere in the model of quality of care. This fourth category can be included in external objective care conditions in the framework of patient satisfaction.

The findings indicate that patients’ perceptions of quality of care and patient satisfaction are two different concepts. Furthermore, both person-related conditions and external objective care conditions are related to patients’ perceptions of quality of care and patient satisfaction. The results presented in the four papers in relation to the theoretical framework of patient satisfaction showed that variables within the person-related conditions seem to be the strongest predictors of patient satisfaction. Perceptions of quality of care (PR) also contributed to patient satisfaction. The results from the quantitative analyses are supported by the findings from the qualitative analysis.
Discussion

Discussion of results

Patients’ perceptions of quality of care (PR) and patient satisfaction are discussed first, followed by a discussion of the impact of person-related and external objective care conditions on patients’ perceptions of quality of care (PR). Thereafter, the impact of patients’ person-related conditions, external objective care conditions, and perceptions of quality of care (PR) on patient satisfaction are discussed. Finally, patient satisfaction in relation to experiences of hospital stay and the three identified profiles of patients are discussed.

Patients’ perceptions of quality of care (PR) (I-III)

Mean scores of patients’ perceptions of quality of care (PR) for the patients participating (N=528) in this thesis ranged between 3.51 and 3.56 on the four quality of care dimensions: medical-technical competence, identity-oriented approach, physical-technical conditions and socio-cultural atmosphere, indicating that the overall view of quality of care among patients in the Norwegian wards participating was good. However, a more nuanced picture arose from a deeper analysis of subgroups of patients. One group of patients (14%) was characterized as having the worst perceptions of quality of care with mean scores on the four quality dimensions (PR) between 2.43 and 2.82. The group (55.2%) with the best perceptions of quality of care had mean scores between 3.78 and 3.88. The mean scores of all participants and the group with the best perceptions of quality of care are considerably more positive than scores from previous studies in Swedish emergency departments (Franzén, et al., 2008), in medical and surgical wards (Fröjd, Swenne, Rubertsson, Gunningberg, & Wadensten, 2011) and from a study comparing patients’ scores in England, France, Sweden and Norway (Wilde Larsson, et al., 2005). On the other hand, the mean scores of the group with the worst perceptions of quality of care are considerably lower. Both high and low mean scores can give important information for work with quality improvement on the wards by indicating areas in which the healthcare needs to be improved, and areas where the healthcare personnel can continue the good work.
Patients’ perceptions of satisfaction (II-III)

The mean score of patient satisfaction (ESRQ) for the patients (n=373 with complete answers on ESRQ) was +3.44 and indicating that the overall view of patient satisfaction among patients in the Norwegian wards participating was high. However, cluster analysis show that mean scores of ESRQ varied between one group (30.8%) that was less satisfied with an ESRQ score of -2.36, and one group (55.2%) that was more satisfied with an ESRQ score of +8.17. A more nuanced picture of patient satisfaction became apparent. The mean score in the more satisfied group of patients is more favourable than that of the Larsson and Wilde-Larsson (2010) Swedish study using the same instrument among outpatients. ESRQ has recently been developed for use in healthcare research, and consequently few studies have yet been conducted using this instrument. Few studies have been published, and the findings in the present thesis are therefore difficult to compare.

The impact of person-related conditions on patients’ perceptions of quality of care (PR) (I)

The person-related conditions included in this analysis were: sex, age, education, hospital admission, former stay in hospital, changing wards during hospitalisation, self-reported physical health, and self-reported psychological well-being. The following conditions were found to have a statistically significant impact on patients’ perceptions of quality of care: sex, age and self-reported psychological well-being.

Regarding sex, women rated quality of care (PR) higher than men on the dimensions medical-technical competence and identity-oriented approach, which are the dimensions that refer to the qualities of the caregivers. Women and men have different patterns of healthcare use (Crow, et al., 2002) and this may play a role in their perception of quality. Women, for example, use the healthcare system more often (Bertakis, Azari, Helms, Callahan, & Robbins, 2000), and it may thus be important to them how they experience person-to-person relationships. The effects of sex have been investigated in previous studies, and substantially different results obtained. Some studies have found that women have less favourable scores than men (Danielsen, et al., 2007),
while others found that sex is unrelated to patients’ perceptions of quality of care (Wilde Larsson, et al., 1999). A review found that the impact of sex was inconclusive (Crow, et al., 2002).

**Age** and *self-reported psychological well-being* had a significant impact on all four dimensions of patients perceptions’ of quality of care, a result which is consistent with previous results (Wilde, Larsson, Larsson, & Starrin, 1995; Da Costa, et al., 1999; Westaway, et al., 2003; Danielsen, et al., 2007). Due to more life experience, *elderly* people might have other expectations of healthcare than younger patients, and they may also appreciate being cared for to a greater extent (Fitzpatrick, 1997). It might also be that they receive better quality healthcare, because they have poorer health status. On the other hand, younger patients may have more knowledge about disease and treatment, because of a greater use of internet and a higher education level, and thus are more demanding (Danielsen, et al., 2007).

Low scores on *psychological well-being* were related to low scores on quality of care. Patient with low psychological well-being may assess the whole situation more critically (Wilde, et al., 1994). It is, on the other hand, possible that such patients receive lower quality healthcare. The relationship between psychological well-being and the rating of quality of care is not clear. It is a question of what comes first: perception of a higher quality of care or psychological well-being.

Level of education, self-reported physical health condition, hospital admission, former stay in hospital, and changing wards, did not have statistically significant impact on patients’ perception of quality of care in this thesis. These findings differ from previous research, where these conditions are found to contribute (Henderson, et al., 2004; Danielsen, et al., 2007; Kanak, Titler, Shever, Fei, Dochterman, & Picone, 2008).

The differences in results from different studies regarding the impact of person-related conditions on perception of quality of care may be due to different ways of measuring the concept of quality of care, the combination and number of conditions included in the studies, or different statistical analyses.
External objective care conditions included in this analysis were: RNs (headcount), nursing care model, number of beds, average length of patient stay and over-occupancy. The following conditions were found to have a statistically significant impact on patients’ perceptions of quality of care (PR): RNs (headcount) and over-occupancy.

More RNs (headcount) on the wards contributed negatively to patients’ perceptions of quality of care. A deeper analysis of quality of care (PR) revealed that it was the socio-cultural atmosphere on the wards that was negatively influenced. It may be that the positions were filled with RNs who worked part-time, and patients may then have to cooperate with more RNs than would be the case if the positions had been filled with RNs working full-time. Previous studies that have explored the effects of various factors on the patients’ perceptions of quality of care have focused on patients’ experiences with the nursing service and on the number of hours worked by RNs, not the actual number of RNs (Abramowitz, et al., 1987; Graveley & Littlefield, 1992; Otani & Kurz, 2004; Otani, et al., 2010). Cooperating with more RNs may negatively affect continuity in the patient-RN relationship. On the other hand, continuity may be maintained depending on, for example, models of nursing care (Suhonen, Välimäki, Katajisto, & Leino-Kilpi, 2007; Sjetne, Veenstra, Ellingsen, & Stavem, 2009). It is possible that RNs who work part-time are more occupied with following the routines on the wards and are more uncertain about delivering individualised nursing care. It is also possible that the RNs feel uncomfortable, because they do not know the other RNs that well. This might influence the atmosphere on the wards. RNs work part-time more often than women with other types of bachelor degree in Norway, although 50% fewer RNs who completed their bachelor degree in nursing in 2003 work part-time than RNs educated in the seventies (Abrahamsen, 2010).

Frequency of over-occupancy of patients on the wards had an impact on two of the four dimensions of quality of care, and these were the dimensions regarding the care organisation: physical-technical conditions and the socio-cultural atmosphere. No previous studies were found that had investigated the effect of over-occupancy on patients’ perceptions of quality of care. The patients’ scores on the dimension physical-technical conditions were lower when they had been
accommodated on wards with over-occupancy seldom than when they had been accommodated on wards with over-occupancy never or always. These findings were quite surprising. One explanation may be that wards that are always over-occupied have developed routines that take care of the patients’ needs. The head nurses on these wards might, for instance, have regular RNs available who have knowledge of the patients’ diagnoses on the ward including procedures and treatment, and of the ward’s routines. This may not be the case for wards that are occasionally over-occupied. It might also be the case that patients see the increase in activity and therefore have lower demands on the healthcare. Furthermore, the results indicate that wards that are always over-occupied have access to the necessary technical equipment, even during over-occupancy.

Patients’ scores on the socio-cultural dimension were higher in wards that never had over-occupancy compared with wards that always, weekly or seldom had over-occupancy. It is possible that RNs have more time to create a good atmosphere, to encounter the patients’ relatives and to base the nursing care on the patients’ needs in wards that never have over-occupancy. It must be remembered, however, that RNs are only part of a wards’ atmosphere. The socio-cultural dimension in patients’ perceptions of quality of care (Wilde, et al., 1993; Wilde, et al., 1994) includes other personnel than RNs, such as doctors and assistant nurses. On the other hand, research has shown that RNs are important for patients’ perceptions of quality of care (Otani, et al., 2010). In emergency wards, RNs who felt less job-related stress experienced a better professional nursing environment and higher levels of job satisfaction and thus created a more favourable socio-cultural environment for the patients (Tervo-Heikkinen, Partanen, Aalto, & Vehviläinen-Julkunen, 2008). A high patient-to-nurse ratio may be inadequate to provide safe and effective care during over-occupancy, and the risk of burnout and job dissatisfaction among the RNs may increase. This may, in turn, affect the patients’ perceptions of quality of care (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002).
The impact of patients’ person-related conditions, external objective care conditions, and perceptions of quality of care (PR) on patient satisfaction (II)

The sequential multiple regression analysis in three steps with three groups of variables (person-related conditions, external objective care conditions and perceptions of quality of care) resulted in a statistically significant patient satisfaction model that explained 54.7% of the variance.

Person-related conditions

In step 1 the significant impact of person-related conditions, explained 51.7% of the variance of patient satisfaction, and showed the strongest impact. The person-related conditions included in this analysis were: sex, age, education, previous admittance, in-patient stay, self-reported physical health, self-reported psychological well-being, pain, sense of coherence, personality, and preferences (SI). The following person-related conditions were found to have a statistical significantly impact on patient satisfaction: psychological well-being, sense of coherence, pain right now and educational level.

Patients with higher scores on self-reported psychological well-being have more favourable scores on patient satisfaction, patients who rate SOC higher also rate patient satisfaction higher, and patient with lower level of education rate satisfaction higher, which is in the mainstream of results from patient satisfaction studies (Da Costa, et al., 1999; Crow, et al., 2002; Westaway, et al., 2003; Larsson & Wilde-Larsson, 2010).

Intensity of pain right now was considered as part of the patients’ self-reported health, and has not been found to be used as a variable in combination with others within the person-related condition in previous studies. The results in this thesis show that pain intensity, combined with other variables, is important, and that more pain predicts lower satisfaction. Previous studies that investigated pain as a separate variable in connection with pain management found that patients tend to rate pain management as satisfactory even if they have experienced much pain (Sauaia, et al., 2005; Niemi-Murola, Pöyhiä, Onkinnen, Rhen, Mäkelä, & Niemi, 2007). Furthermore, how the patients rate their pain gives information about the patients’ state when answering the
questionnaire, and ought to be considered valuable background information when interpreting the results from patient satisfaction studies.

The person-related conditions: age, sex, self-reported physical health condition, average pain, and average length of patient stay, did not contribute statistically significant to patient satisfaction. These findings differ from previous research, where these conditions are found to contribute (Henderson, et al., 2004; Sauaia, et al., 2005; Darielsen, et al., 2007; Findik, et al., 2010). A possible explanation is that combining variables in the analysis makes these variables’ unique contribution too small to be significant. Furthermore, Big Five personality trait - SIMP did not contribute significantly. This is in line with a previously study by Hendriks, et al. (2006), who did not find any relationship between personality and patient satisfaction. However, Larsson and Wilde-Larsson (2010) found that higher scores on two personality scales (extraversion and emotional stability) contributed positively to patient satisfaction when testing the theoretical framework of patient satisfaction. The question is whether SIMP, which has only one item per personality dimension, is too broad.

Furthermore, the four subjective importance dimensions that are measuring commitments (preferences) did not contribute significantly to patient satisfaction. One possible explanation is that measuring preferences differently gives different results. Larsson and Wilde-Larsson (2010) used three of the four dimensions (four factors) in their study and found that one factor contributed significantly to patient satisfaction. In this thesis all four dimensions were covered.

**External objective care conditions**

In step 2, the significant impact of external objective care conditions explained 2.4% of the variance of patient satisfaction. External objective care conditions included in this analysis were: ward type, RNs (full-time equivalent), assistant nurses (full-time equivalent), nursing care model, number of beds, frequency of over-occupancy, admission type and occurrence of changing wards. Only admission type had a statistically significant impact on patient satisfaction.

Patients who were admitted as emergencies scored lower on patient satisfaction. One possible explanation is that patients whose admission to hospital is planned receive individualised and sufficient information before admitted to
hospital and are therefore better prepared. Continual information about procedures, treatment and routines is of great importance for the patients, and Arentz and Arentz (1996) emphasise the importance of information concerning one’s illness. Furthermore, the results indicate that healthcare managers and head nurses need to develop routines to take care of acutely admitted patients. Healthcare personnel need to be prepared for rapidly changing situations during work when acutely ill patients are hospitalised. Admission procedures have an impact on overall satisfaction (Haase, et al., 2006).

**Quality of care (PR)**

In step 3, the patients’ perceptions of quality of care (PR) added a further 0.5% explanation of the variance of patient satisfaction. However, this contribution was not statistically significant. Earlier results (Larsson & Wilde-Larsson, 2010) showed that quality of care (PR) was found to have impact on patient satisfaction.

The discrepancy in results may depend on differences on measures and analysis. The findings from the sequential multiple regression analysis deepen the understanding of the theoretical framework of patient satisfaction (Larsson & Wilde-Larsson, 2010). When Larsson and Wilde-Larsson (2010) tested the theoretical framework, only parts of Quality from patient perspective questionnaire (Wilde Larsson & Larsson, 2002) were used, and no items covering the external objective care conditions were included. The full QPP short version and eight items concerning external objective care conditions were included in this thesis.

**Patient satisfaction in relation to experiences of hospital stay and the three identified patient profiles (III-IV)**

In the qualitative content analysis (IV), four categories emerged: desire to regain health, need to be met in a professional way as a unique person, perspective on life, and need to have balance between privacy and companionship. Patients described positive and negative emotions, such as being happy, relieved, glad, sad, angry, and insecure. In the cluster analysis (III), three groups of patients were identified: patients who were most satisfied and had the best perceptions
of quality of care, patients who were less satisfied and had better perceptions, and patients who were less satisfied and had the worst perceptions.

The ‘desire to regain health’ concerns the informants’ medical problems, and their hopes of being diagnosed, treated and continuing with their lives (IV). The ‘medical-technical competence’ dimension in the theoretical model of quality of care includes the importance of receiving healthcare to regain physical functioning (Wilde, et al., 1993). The informants described feelings like being relieved, glad, pleased and being sad, worried and disappointed, depending on whether they recovered from their health problems or not. These feelings are emotions that describe the informants’ satisfaction, and express the importance of physical health on patient satisfaction. Larsson and Wilde-Larsson (2010) found that self-reported health contributed to patient satisfaction. Some of the informants explicitly stated that they could never gain complete satisfaction when they were very ill, and knew that they could never be well again. They even stated that it had nothing to do with the healthcare received in hospital.

Some patients, in contrast, described high-quality care. The perceptions of quality of care and emotions described by the informants (IV) may add a deeper understanding of the group of patients from the cluster analysis who were less satisfied, and had better perceptions of quality of care (III). It may have to do with their self-reported health condition. Previous studies have found that medical outcomes (Henderson, et al., 2004), and total symptom severity score at discharge, together with the degree of symptomatic improvement that occurred during hospitalisation, are associated with patient satisfaction with healthcare (Kroenke, et al., 1999). The physical health conditions were found to be lower in this cluster, but did not distinguish significantly between the clusters. The qualitative data give a deeper picture of this group.

Those patients expressing their happiness of being cured or repaired (IV) may deepen the understanding of the patients that were most satisfied and had the best perceptions of quality of care (III). Their desire for regain health may have been achieved. In addition their psychological well-being and SOC was rated highest among the clusters. According to Antonovsky (1993) persons who have a stronger SOC are better able to manage a complex and difficult situation. Having health problems and be hospitalised might be considered as a complex situation.
The ‘need to be met in a professional way as a unique person’ concerns the informants' need for individual care by competent healthcare personnel (IV). This category can be related to the identity-oriented approach and the medical-technical condition in the theoretical model of quality of care (Wilde, et al., 1993). The identity-oriented approach describes the patients' desire for humanity in care with qualified caregivers with the knowledge and empathic skills required to see the patients as unique individuals. The medical-technical condition focuses on the patients’ desire to be examined, diagnosed, treated and relieved of symptoms by qualified healthcare personnel with proficiency and knowledge. Emotions such as feelings of hope, optimism, powerlessness, and irritation, may be connected to the patients’ preferences regarding the healthcare personnel’s competence and of their relationship to the personnel. The patients’ satisfaction was related to whether their preferences were met or not. Further, this category can relate to the person-related condition ‘commitment’ in the theoretical framework of patient satisfaction (Larsson & Wilde-Larsson, 2010).

In the group of patients who were less satisfied and had the worst perceptions of quality of care (III), the subjective importance ratings of the medical-technical competence, and the identity-oriented approach dimensions were found to be less favourable. The results indicate that personalised healthcare by competent personnel has an impact on patient satisfaction. To be able to give individual information and see the unique person, healthcare personnel need to have competence and be professional. In the present thesis this was described as something the informants expected the personnel to be, and this is in line with previous findings (Johansson, et al., 2002; Thorne, et al., 2002; Henderson, et al., 2004; Danielsen, et al., 2007).

The category ‘perspective on life’ concerned the informants’ view of life and how they handled hospitalisation (IV). This category can be related to personality, one of the person-related conditions in the theoretical framework of patient satisfaction (Larsson & Wilde-Larsson, 2010). Among patients who were less satisfied and who had the worst perceptions of quality of care (III), agreeableness, one of the five personality traits, was found to be considerably lower, but not significantly different between the groups. Low scores on agreeableness are characterized by tending to be more critical, more ready to find fault with others, and more forthright (Woods & Hampton, 2005). These patients may assess the whole situation more critically. Previous studies have
been inconclusive regarding the effect of personality on satisfaction. Hendriks, et al. (2006) did not find any relationship, while Larsson and Wilde-Larsson (2010) found that patients who were extraverted and emotionally stable reported higher satisfaction.

Patients described the ‘need to have balance between privacy and companionship’ as concerning the fellow patients and the physical conditions on the wards (IV). These aspects are in line with the physical-technical conditions and the socio-cultural atmosphere dimensions of the theoretical model of quality of care (Wilde, et al., 1993). The patients’ preferences of the physical-technical conditions and the socio-cultural atmosphere also distinguished between the clusters (III). The patients’ opportunity for self-chosen seclusion and self-chosen socialising is emphasised, and also that it is the healthcare personnel’s responsibility to provide patients with this opportunity. The relationship to fellow patients led to feelings like joy and fun, but also stress, worry and irritation (IV). The ‘need to have balance between privacy and companionship’ can be considered among the external objective care conditions in the theoretical framework (Larsson & Wilde-Larsson, 2010). The following external care conditions were significant when the clusters were compared: model of nursing care, over-occupancy, admission type, number of RNs and bed numbers (III).

A literature review investigated the effects of single patient rooms. The effect on patient satisfaction was only moderate with care, noise, quality of sleep, and the experience of privacy and dignity being most important (van de Glind, Roode, & Goossensen, 2007). This result is comparable with the findings in this thesis where sharing rooms also were considered as supporting and pleasant (IV). A previous study gave the same results, but also revealed that patients whose health deteriorates, and those with disturbing behaviour had a negative impact on the fellow patient (Isaksen & Gjengedal, 2006). Patients may find it difficult to maintain confidentiality in multiple-bed units (Said, Sidhu, Kapopur, & Soliman, 2011).

The findings from the content analysis and the cluster analysis confirm the content of the theoretical model of quality of care from a patients’ perspective (Wilde, et al., 1993) and deepen the understanding of patient satisfaction measured as an emotion (Larsson & Wilde-Larsson, 2010). A deeper picture of
Methodological considerations

Design

A combination of quantitative and qualitative designs was used in this thesis, and this is an emerging trend in nursing research (Polit & Beck, 2012). The use of mixed methods is recommended in healthcare quality research, which is a complex and multidimensional area, to be able to obtain a more complete picture of healthcare quality and of how to improve quality (Hearld, et al., 2008). Mixed methods are described as research in which the data are collected and analysed, findings integrated and inferences drawn based on both quantitative and qualitative methods. Validity may be enhanced by multiple and complementary types of data. Using the explanatory design of mixed methods in this thesis has the advantage of being straightforward (Polit & Beck, 2012).

The quantitative study (I-III)

Patients from 12 wards participated in this thesis. Twelve different RNs were responsible for including patients in the study, for giving oral information to the patients and collecting data. Geographic distances between the hospitals, and busy RNs on the wards, made it more economical and rational to inform each ward and responsible RN separately. The information was both written guidelines for inclusion criteria and the same information given orally. The RNs may have had different opinions of the information, and they may also have assessed the patients’ mental and physical health differently. Consequently, patients answering the questionnaire on one ward may have been assessed by another RN as not being able to be included in the study on another ward and vice versa, and this potential inconsistency may be a threat to external validity (Polit & Beck, 2012).

The response rate of 83.7% (I-III) is considered to be sufficient and the risk of
bias is relatively small (Streiner & Norman, 2007; Polit & Beck, 2012). A strictly consecutive sample was impossible to obtain. The responsible RN had to give priority to other tasks in the ward and did not always have time to ask patients whether they were willing to participate in the study. In addition, the RN forgot to ask in some cases. These reasons are known from a previous study (Ehnfors & Smedby, 1993). The loss of respondents, however, was random and has not compromised the statistical reliability of the study. Patients were approached on different days of the week, at different times during the day, and during different seasons to achieve random sampling. During the summer holiday period and the Christmas period data was not collected because of merging wards. Data from merged wards would have given answers on other external objective care conditions than those from each specific ward.

In the analyses (I-III), patients with incomplete responses to the instruments (QPP and ESRQ) were excluded. The loss of 60 respondents from the GLM analysis, 155 respondents from the hierarchical regression analysis, and 164 respondents from the cluster analysis can be seen as a further weakness of the study. However, sex, length of stay and type of ward of the excluded and included patients were comparable. Concerning age, the excluded and the average patient in hospitals were slightly older than those in the study samples. The difference in age between the groups suggests that the loss was not random and this may have affected the results. The oldest old were not represented to the same extent as younger patients. This might be due to the questionnaire being too extensive. Furthermore, the older patients may have been assessed by the responsible RNs to have too poor health to answer the questionnaire.

The questionnaire comprised 101 items and may have been too comprehensive. The rates of internal drop-out on items in questionnaires included in the analysis were low (range 2-5 %), which suggests that respondents were able to complete such an extensive questionnaire. Concerning the cluster analysis, 364 patients had complete answers on the clustering variables (ESRQ and QPP PR). Each cluster identified had a sufficient number of patients for the analysis (Hair, et al., 2010). No imputations were made to avoid poor estimates of real values, thus introducing unknown biases (Polit & Beck, 2012). It is a strength of the analysis and the validity that only patients’ own completed answers were included.

Four well-known and well-validated instruments were used in this thesis
together with questions that previous research has shown to reflect accurately patient satisfaction and their perceptions of quality of care. The “Big Five” personality traits (SIMP = five broad items) (Woods & Hampton, 2005) were used in this study to minimise the number of items that the patients answered. Validity might have been strengthened by using the long version with more complementary items (Costa & McCrae, 1992). In the thesis, answers on about 150 questionnaires for SIMP had to be excluded because the scale was wrongly drawn. However, missing data were random, and should not have had any systematic effect on the results. The instruments used in this thesis had different origins with respect to language and culture. Brislin’s back-translation method (Brislin, 1970) was used to ensure semantic and cultural differences concerning ESRQ and SIMP.

The variable admission type can be considered a person-related condition as well as an external objective care condition. In Paper I admission type was analysed as a person-related condition. The reason for this was that admission type was considered to be an aspect of person-related condition because patients are admitted to hospitals as emergencies when they are seriously ill. In Papers II and III, admission type was analysed as an external objective care condition. The reason was that admission type was considered to be an aspect of external objective care conditions because patients are admitted to hospital based on hospital regulations. The variables changing ward, was considered as person-related condition in Paper I and as external objective care condition in Paper II. The variable length of stay was considered as person-related condition in Papers II and III, and as external objective care conditions in Paper I. These variables may be included in person-related conditions when patients’ self-reported health is in accordance with the healthcare personnel’s reasons for moving the patients to another ward or discharging the patients. Sometimes the patients’ health conditions are in such a state that they must extend their stay. On the other hand, the variables may be considered as external care conditions when, for instance, over-occupancy is the basis for discharging patients or moving them to another ward. This shows the complex content of these variables.

The reason for using RNs both as number of RNs (head-count) (I) and as RNs full-time equivalent (II-III) were to explore how these variables affect patients’ perceptions of quality of care and patient satisfaction differently. One variable within external objective care conditions concerned the wards’ nursing models.
This was classified by the head nurses on each ward by self-identification. There might be a question whether these classifications are consistent with the empirical findings. One study found only moderate consistency regarding the head nurses’ classification of the wards’ nursing model and objective classification using specific criteria for each model (Sjetne, Helgeland & Stavem, 2010).

Patients’ expectation can be seen as a person-related condition and is difficult to measure. Expectations can also change during a hospital stay (Crow, et al., 2002). The answers to expectation-based items at discharge would probably be affected by the experiences during hospitalisation, and are difficult for the patient to distinguish from their expectations at admission (Staniszewska & Ahmed, 1999). Five items were constructed to assess patients’ expectations in this thesis, but these were excluded from the analysis because of insufficient constructions.

Cronbach’s alpha was used to measure the internal consistency of the QPP PR dimension scales. It ranged between 0.62 and 0.87 for three of the quality dimensions, and this range is comparable with previous studies. The one exception was Cronbach’s alpha for the physical-technical dimension, 0.54, which is lower than previous studies (Wilde Larsson & Larsson, 2002; Franzén, et al., 2008). Cronbach’s alpha, however, is lower for scales that comprise fewer items (Streiner & Norman, 2008). The physical-technical dimension scale included only three items. The dimension was retained despite its moderate Cronbach’s alpha. The dimension that measures physical-technical conditions forms, together with the other three dimensions, the theoretical model of quality of care from the patients’ perspective and cannot be excluded from the analysis.

In this thesis multivariate analysis were used. When using multivariate analysis, the number of variables needs to be considered, because more variables tend to cover the variables’ unique contribution for predicting the dependent variable. In a regression analysis, for instance, adding more independent variables will increase the possibility for statistically significant results, simply due to the increase in the number of variables, and not because of the impact of the individual independent variables on the dependent variable (Tabachnick & Fidell, 2007). The results in this thesis may give a new foundation for further
studies concerning variables of importance for patients’ perceptions of quality of care and patient satisfaction.

The patients completed the questionnaire while they were still in hospital, which might be seen as a weakness. Patients may have felt obliged to answer more positively than they would have answered after discharge. To avoid this, the patients were asked to fill in the questionnaire in their room and return the questionnaire in a sealed envelope. Indeed, the completion of the questionnaire while still in hospital may be a strength, because the experiences are still fresh and not biased by the passing of time (French, 2003). Patients tend to be more satisfied and have better perceptions of quality of care only weeks after discharge, and thus the usefulness of the results for improving service quality is limited. A study by Jackson, et al. (2001) found that 52% of patients were fully satisfied with their care immediately after the visit, increasing to 59% after two weeks and 63% by three months. Results from studies that have examined the effect of survey timing are, however, contradictory and the effect may depend on the nature of the patients’ illness and the extent of recovery (Crow, et al., 2002). The ability of patients to evaluate medical and technical aspects of care is uncertain, as are the stabilities of patient satisfaction and the evaluation of care quality as time passes (Sofaer & Firminger, 2005). When studying quality from the patients’ perspective, the patients’ perceptions are of interest. These perceptions are unique and ought not to be valued as right or wrong perceptions.

Patients with very poor physical and/or mental health, and patients who did not understand Norwegian were not invited to participate in the study. Other studies have experienced similar problems with obtaining responses from the oldest old, the severely ill and those who did not understand the language (Crow, et al., 2002). The results are based on answers from patients on general medical and surgical wards, and may be applied to other patients on similar wards in Norway. Generalising to older patients, however, must be done with caution, because the participants were younger than average patients staying on the participating wards. Generalising to the seriously ill, and to people who do not understand the language must also be done with caution, because these patients were not included in this thesis.
*The qualitative study (IV)*

By using a systematic data collection and systematic conventional content analysis, confirmability was achieved (Polit & Beck, 2012). The codes and categories were derived from the data (Hsieh & Shannon, 2005). The data collection and the steps of the conventional content analysis were described to enhance credibility. Although the researchers sought to be as open as possible during the data collection and the analysis, there is a possibility that the theoretical basis of the thesis may have affected. This was discussed several times during the process. Further, credibility was achieved by describing the data collection and the steps of the conventional content analysis of the data. The interview questions were open regarding the patients’ experiences from the hospital stay. Quotations from the informants were used to substantiate the subcategories and the categories that emerged from data (Polit & Beck, 2012). The informants chose the place and time for interview. A limitation might be that some of the interviews were conducted in public places. The informants and the author jointly chose a place to sit where there would be no disturbance, and where other guests could not hear the conversation.

The interviews were conducted between three and eight weeks after discharge from hospital. This might have had impact on patients’ answers, because they tend to be more positive of their hospital stay as times pass. But findings connected to time of interviews, however, are inconclusive (Crow, et al., 2002). To follow and describe the steps of the content analysis and by using a recorder to be able to verify the results, may have strengthened the dependability. By including patients with various health problems staying on general medical and surgical wards, the results might be transferable to contexts with similar groups of patients.
Conclusions and implications for practice

In conclusion, this thesis shows relationships between person-related conditions, external objective care conditions, patients’ perceptions of quality of care and patient satisfaction.

Conclusions and implications from the thesis:

✓ Patients’ perceptions of quality of care and patient satisfaction are two different concepts.

✓ A deeper understanding of the theoretical framework of patient satisfaction was achieved and the theoretical model of quality of care was confirmed.

✓ Both QPP and ESRQ questionnaires are easy to administer and to complete, and can be used in the evaluation of healthcare and in planning healthcare improvements in hospital wards.

✓ Patients’ perceptions of quality of care and patient satisfaction varied from lower to higher depending on whether subgroups of patients or all patients were studied. Head nurses and other healthcare personnel need to be aware of this variation among patients when planning and conducting care, and when improving quality of care.

✓ Person-related conditions were found to be the strongest predictors of patients’ perceptions of quality of care and patient satisfaction. RNs need to be aware of this when planning and conducting nursing care.

✓ External objective care conditions were found to be predictors of patients’ perceptions of quality of care and patient satisfaction. Healthcare administrators must consider more full-time positions for RNs in hospitals and reduce the number of part-time positions. There is a need of guidelines for handling over-occupancy, and of procedures for emergency admissions on the wards.

✓ Patients described a desire to regain health, and to be met in a professional way as a unique person. Patients want to have knowledge
about their health situation. Sometimes patients’ want to make their own decisions regarding procedures and treatment, and sometimes they want to leave the decisions to the healthcare personnel. Healthcare personnel need to be aware of this.

 ✓ Healthcare personnel need to be aware of the patients’ perspective on life in relation to hospital stay, and patients’ need of a balance between privacy and companionship when planning and conducting care. Head nurses and RNs need to consider the patients’ health situation before accommodating them.

 ✓ Highly competent and professional healthcare personnel are required for high quality care and satisfied patients. Healthcare personnel must do their utmost to provide patients with person-centred care.

Future research

 ✓ There is a need for more studies based on the theoretical framework of patient satisfaction using the QPP and ESRQ instruments to gain a deeper understanding of quality of care and patient satisfaction.

 ✓ There are person-related conditions that need to be further explored using multivariate analysis, such as personality, sense of coherence, preferences, health-outcome and expectations.

 ✓ There are external objective care conditions that need to be further explored using multivariate analysis, such as over-occupancy, impact of fellow patients, repeated admissions, and the consequences of single rooms versus multiple-bed units.

 ✓ More qualitative studies are needed to further explore why some patients are less satisfied even though they have positive experiences of quality of care, and vice versa.
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Papers I-IV
Patients’ perceptions of actual care conditions and patient satisfaction with care quality in hospital

There are theoretical and methodological difficulties in measuring the concepts of quality of care and patient satisfaction. A theoretical framework of patient satisfaction and a theoretical model of quality of care were used as the theoretical basis in this thesis. The aim was to describe and explore relationships between person-related conditions, external objective care conditions, patients’ perceptions of quality of care, and patient satisfaction with care in hospital. Quantitative and qualitative methods were used.

Patients’ perceptions of quality of care and patient satisfaction are two different concepts. Person-related conditions and external objective care conditions have an impact on patients’ perceptions of quality of care and patient satisfaction. Patients’ perceptions of quality of care and patient satisfaction range between lower and higher, depending on whether all participants or groups of patients, are studied. Three groups of patients were identified regarding their scores on patient satisfaction and quality of care (perceived reality). Furthermore, the following categories emerged as important for patients’ satisfaction: desire to regain health, need to be met in a professional way as a unique person, perspective on life, and need to have balance between privacy and companionship.

Registered nurses need to consider the person-related conditions when planning and conducting nursing care. The number of registered nurses on the wards needs to be considered, and how to handle over-occupancy and patients admitted as emergencies. Person-centred care must be emphasised during hospitalisation.