

DOCTORAL THESIS

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Patients' Experiences of Undergoing Surgery

From Vulnerability Towards Recovery -Including a New, Altered Life

Angelica Forsberg

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Printed by Luleå University of Technology, Graphic Production 2015

ISSN 1402-1544

ISBN 978-91-7583-268-5 (print)

ISBN 978-91-7583-269-2 (pdf)

Luleå 2015

www.ltu.se

Patients' experiences of undergoing surgery: From vulnerability towards recovery – including a new, altered life

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ABSTRACT

The overall aim of this thesis was to explore patients' experiences of undergoing surgery, including their perceptions of quality of care and recovery. A mixed methods design was used, and studies with qualitative methods (I, II) and quantitative methods (III, IV, V) were performed. Data were collected through interviews with ten patients after gastric bypass surgery (I) and nine patients after lower limb fracture surgery (II) and were subjected to qualitative content analysis. Data were also collected using two standardized questionnaires; The Quality from Patient's Perspective (III) and Postoperative Recovery Profile (IV, V). A total of 170 orthopedic and general surgery patients participated in study III. In study IV and V, 180 patients participated. Accordingly, 170 of patients were the same in study III, IV and V. Data were analyzed by descriptive statistics (III, IV, V) and a manifest content analysis of the free-text answers (III) as well as with analytical statistics (IV, V).

Prior to surgery, patients undergoing gastric bypass surgery (I) described a sense of inferiority related to their obesity. In the post-anesthesia care unit, patients felt both omitted and safe in the unknown environment and expressed needs to have the staff close by. Despite the information provided prior to surgery it was difficult to imagine one's situation after homecoming, thus it was worth it so far and visions of a new life were described. Patients undergoing lower limb surgery (II) described feelings of helplessness when realizing the seriousness of their injury. The wait prior to surgery was strain, and patients needed orientation for the future. They remained awake during surgery and expressed feelings of vulnerability during this procedure. In the post-anesthesia care unit, patients expressed a need to have control and to feel safe in their new environment. Mobilizing and regaining their autonomy were struggles, and patients stated that their recovery was extended. The quality of the perioperative care was assessed as quite good (III). While undergoing a surgical procedure (III), the areas identified for improvement were information and participation. Patients preferred to hand over the decision-making to staff and indicated that having personalized information about their surgery was important. However, too detailed information before surgery could cause increased anxiety (III). After surgery, orthopedic patients were substantially less recovered than general surgery patients (IV, V). Approximately two-thirds of orthopedic patients and half of general surgery patients perceived severe or moderate pain in the first occasion (day 1-4 after surgery) (IV). Both the orthopedic and general surgery group showed a significant systematic change at a group level towards higher levels of recovery after one month compared with day 1-4 after surgery. The same patterns occurred regarding acute and elective surgery (V). Patients overall recovered better (IV, V) after a gastric bypass, than after other surgeries. Compared with the period prior to surgery; certain Gastric bypass patients felt after one month that they had improved (IV). The orthopedic groups assessed their psychological function as being impaired after one month compared with the first occasion (IV, V).

The overall view of patients' experiences of undergoing surgery (I-V) can be understood as a trajectory, from vulnerability towards recovery, including a new, altered life. Patients' experiences and perceptions of the care given (I, II, III) are embedded within this trajectory. As a thread in this thesis, through all studies, patients expressed vulnerability in numerous ways. A progress towards recovery with regards to regaining preoperative levels of dependence/independence could be concluded. Thus, for patients undergoing gastric bypass surgery, a view of a new, altered life after surgery was also discernible. While undergoing surgery, satisfaction with the provision of information not necessarily include receiving as much and the most detailed information as possible; nevertheless, the need for information to a great extent is personal. The recovery-period for orthopedic patients is strain, and the support must be improved. In conclusion, the perioperative support may contain a standardized part, made-to-order to the general procedure commonly for all patients, such as information about the stay in the post anesthesia care unit. Moreover, the support should be person-centered, accounting for the patients' expectations about the future but also tailored to the specific surgical procedure; with its limitations and possibilities. Then, patients in a realistic way would be strengthened towards recovery, including a new, altered life.

Keywords: Nursing, Gastric Bypass, Surgery, Orthopedic, Mixed methods, Quality of Care, Recovery

ABBREVIATIONS

ASA:	American Society of Anesthesiologists' physical status classification system I=healthy patient II= mild systemic disease III=severe systemic disease IV=severe systemic disease that is a constant threat to life
GBP:	Gastric bypass surgery
ICU:	Intensive care unit
NRS:	Numerical rating scale
PACU:	Post-anesthesia care unit
PRP:	Postoperative recovery profile
QPP:	Quality from patient's perspective
VAS:	Visual analog scale
VRS:	Verbal rating scale

ORIGINAL PAPERS

This doctoral thesis is based on the following papers, which will be referred to in the text by their Roman numerals (Studies I-V).

- I. Forsberg A, Engström Å & Söderberg S. (2014). From reaching the end of the road to a new lighter life – People’s experiences of undergoing Gastric Bypass surgery. *Intensive and Critical Care Nursing 30*, 93-100.
- II. Forsberg A, Söderberg S & Engström Å. (2014). People’s experiences of suffering a lower limb fracture and undergoing surgery. *Journal of Clinical Nursing 23*, 191-200.
- III. Forsberg A, Vikman I, Wälivaara B-M & Engström Å. Patients’ perceptions of quality of care during the perioperative procedure. *Journal of Perianesthesia Nursing*. (In press).
- IV. Forsberg A, Vikman I, Wälivaara B-M, Engström Å. Patients’ perceptions of their postoperative recovery for one month. *Journal of Clinical Nursing*. (In press).
- V. Forsberg A, Vikman I, Wälivaara B-M, Engström Å. Patterns of changes in patients’ postoperative recovery from a short term perspective (In manuscript).

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PREFACE

As a nurse, first in a general surgery respective an orthopedic ward, and then in an intensive care unit (ICU) with a related post-anesthesia care unit (PACU), I met patients in different phases of the perioperative procedure. My experience has been that while undergoing surgery, patients experience a complexity of feelings and symptoms, such as anxiety, fears, sometimes pain, and concerns regarding their future. Based on this experience, I became interested in how patients undergoing different types of surgery may experience their stay in the PACU, including their perceptions of the quality of the care received and their recovery period. My role as a nurse, regardless of working in the wards or the ICU, includes not only safely performing medical and technical interventions but also providing support by helping the patients to manage the actual distress. To improve their care, it may be important to consider the perspective of the patients and allow them to describe their experiences of undergoing surgery, including their perceptions of the quality of the care provided and their recovery needs. When I performed my first interviews, the participants who had undergone GBP surgery said that they wanted to tell their whole story from the period prior to surgery to the time of the interviews after the surgery. While listening to the participants, I realized that the experiences of their stays in the PACU were only a minor part of a broader topic, i.e., the experience of undergoing surgery. This understanding was the starting-point of the present thesis; patients' experiences of undergoing surgery.

INTRODUCTION

The overall aim of this thesis was to explore patients' experiences of undergoing surgery, including their perceptions of the quality of care and recovery. In this thesis, people who undergo surgery will be referred to as 'patients,' regardless of the environment, but it is essential to keep in mind that 'the patient' is a person who could have been you or me. When the home environment is replaced by an acute hospital setting and the person obtains a new, often-involuntary role as a patient, feelings of being exposed and losing control over the situation may emerge (Engström *et al.* 2013). When a patient suffers from a disease or an acute injury and has to undergo surgery, it is often a major life-event (cf. Åkesdotter-Gustafsson *et al.* 2010) that temporarily or for a long time changes the nature of the patient's life (Karlsson *et al.* 2012). During the perioperative procedure, the patient is commonly in a vulnerable situation (Reynolds & Carnwell 2009), and living through a surgical procedure has been likened to being on a trajectory from unconsciousness and instability to consciousness and stability (Prowse & Lyne 2000).

To increase the knowledge and understanding regarding the topic of being ill or injured, the experience of the entire procedure should be relayed (cf. Bergbom 2007) from the initial point when surgery is decided upon, including the care provided at the hospital through the recovery period at home. The concepts of quality of care and postoperative recovery have been used to describe and explore essential aspects of patients' perceptions of undergoing surgery. In this thesis, the term 'quality of care' comprises patients' perceptions of satisfaction/dissatisfaction and their perceived subjective importance concerning an existing care structure more external to the individual. Quality of care indicates, for example, the perceptions of information, encouragement and atmosphere (Wilde *et al.* 1993), although the patient is naturally a part of this context. The term 'recovery' is linked to the patients' perceptions of their own functional level after surgery, such as physical symptoms and psychological functions (cf. Allvin 2009), although this may be affected by other factors such as the quality of care provided. Research on these topics is lacking, and it is important to

develop a perioperative nursing knowledge about the entire procedure of undergoing surgery (Archibald 2003). Patients who have undergone surgery possess this knowledge and can tell us about their needs for support during their journey through the perioperative procedure.

BACKGROUND

The perioperative procedure

The perioperative procedure includes three phases: the pre-, intra- and post-operative phases (Lindwall & Von Post 2000). In this thesis, ‘the perioperative procedure’ can be understood as a general structure that begins when the patients become aware that they have to undergo surgery, which is lived through and on which their experiences and perceptions are based, i.e., undergoing surgery. The perioperative procedure includes, among other factors, patients arriving from their homes, sometimes being transferred through the emergency department and X-ray facilities, to the ward to prepare for surgery. The patients are transferred to the theatre-room for surgery and are within a sterile environment, surrounded by sophisticated equipment and a highly technical working space with major demands on safety and hygiene (Mauleon 2005). After surgery the patients are transferred to the PACU for surveillance. The main purpose of a PACU is to identify, prevent and/or immediately treat the early complications of anesthesia or surgery prior to the development of deleterious serious problems (Vimlati *et al.* 2009, Whitaker *et al.* 2013). PACUs are open settings where many patients are cared for simultaneously in a high-tech environment (Allen & Bagdwell 1996). When the patients have physically recovered from the anesthesia and surgery, they are returned to the ward for further surveillance and preparation prior to being discharged home. The advancement of anesthetic and surgical techniques and the prioritization of resources in healthcare have resulted in shorter hospitalizations for patients who undergo surgery (Kehlet & Wilmore 2002). Finally, the recovery period continues in the patients’ homes.

Undergoing different types of surgery

Surgical interventions can be divided into orthopedic and general surgery procedures, depending on the site of the surgery. Patients who undergo surgery on the musculoskeletal system commonly have an orthopedic affiliation (The National Board of Health and Welfare 2013). Studies (Allvin *et al.* 2011, Berg *et al.* 2012) have shown that orthopedic patients and surgical patients may differ in their assessments of recovery after surgery. Regardless of the surgical affiliation, the surgery can be elective or acute in nature. Patients who undergo elective surgery are usually prepared and informed in advance (Kvalvaag-Gronnestad & Blystad 2004), while patients who suffer an acute injury or disease and require surgery experience an unknown and unexpected situation and receive the information in this context (c.f. Åkesdotter-Gustafsson *et al.* 2000). One example of an elective general surgery procedure is GBP surgery, where the patients receive substantial information prior to surgery. Those patients who undergo GBP plan and prepare for this surgery over a long period of time (Groven *et al.* 2010), and they even make changes in their daily lives as they are often instructed to lose weight before surgery. Those who undergo acute orthopedic surgery are exemplified in this thesis by patients undergoing surgery after suffering fractures. The change in their daily lives is sudden and does not allow for preparation, and the patients have limited knowledge about how this event will affect their future (cf. Harms 2004, Tan *et al.* 2008). During a surgical procedure, either general anesthesia or regional anesthesia or a combination of both may be performed (Cobbold & Money 2010). Naturally, the type of anesthesia performed affects the patients' experiences during and after surgery. Perioperative care has become increasingly specific, involving more advanced interventions. However, major attention has been directed towards standardizing surgical care with the goal of shortening the time to recovery and decreasing the use of hospital resources (Kehlet & Wilmore 2002). Patients' experiences of undergoing surgery may regardless of the surgical affiliation or whether the surgery is performed on an acute or elective basis, partially be similar. Hence, the patients' experiences may also differ, depending on the group-affinity or individual variations. According to Suhonen and Leino-Kilpi (2006), there is a poor

understanding of the detailed experiences of surgical patients in clinical care. An exploration of the experiences of different surgical groups undergoing surgery, both for each patient and the group therefore seems to be essential.

Anxiety and information prior to surgery

Regardless of the nature of the surgery, patients commonly experience anxiety and fear prior to surgery (Rosen *et al.* 2008, Pritchard 2009a, Bailey 2010). Preoperative anxiety can be related to previous negative experiences of undergoing surgery (Rosen *et al.* 2008, Selimen & Andsoy 2011), fear about pain and other discomforts (Rosen *et al.* 2008, Bailey 2010), fear about death during or after surgery and anxiety about potentially negative consequences in the future (Rosen *et al.* 2008, Selimen & Andsoy 2011). Although anxiety prior to the surgery may be considered a normal part of the surgical experience i.e., a human reaction to an unknown situation and future, it is a pervasive problem with far-reaching health outcomes (Bailey 2010). Preoperative anxiety has been shown to affect the experience of well-being and recovery in a negative way (Grieve 2002, Faller *et al.* 2003, Kagan & Bar-Tal 2008, Pritchard 2009b). Interactions have been demonstrated between the levels of preoperative anxiety and postoperative recovery, such as in terms of the length of stay at the hospital (Grieve 2002, Pritchard 2009a), increased postoperative pain and nausea (Pritchard 2009a) and the amount of postoperatively administered pain drugs (Grieve 2002). Preoperative anxiety was in a study (Carr *et al.* 2005), found to be predictive of postoperative anxiety afterwards. There is extensive research that emphasizes the importance of preoperative information (e.g., Kvalvaag-Gronnestad & Blystad 2004, Suhonen & Leino-Kilpi 2006, Bailey 2010). Bailey (2010) reviewed that the most effective interventions for reducing surgical patients' anxiety are perioperative education and music therapy. Thus, there is a gap in adult surgical patients' education needs, including the content of the information (Suhonen & Leino-Kilpi 2006).

The perioperative high-tech environment

The theatre-room is an unfamiliar place for many patients, with its high technological and efficient environment (Garbee & Gentry 2001). This environment may be experienced as frightening, and patients have described how they felt comforted in numerous ways because of their relationship with the staff (Lindwall *et al.* 2003, Bergman *et al.* 2012). Von Post (1999) developed a model; the perioperative dialogue, which consists of the nurse anesthetists or theatre-room nurses and patients encounters pre-, intra- and post-operatively. The purpose of this model is to create a place for dialogue, exchanging information regarding the surgery and to create a sense of community. Lindwall *et al.* (2003) found that the perioperative dialogue created continuity, which included the opportunity to share a story and the perception that one's body was in safe hands during surgery. Moreover, Rudolfsson *et al.* (2007) showed that the expression of care within the perioperative dialogue involved the nurse promising to allow the patient to be her/himself, promising safety regarding her/his welfare and guiding the patient through the surgery. However, patients still experience vulnerability in the theatre-room. Patients' experiences of being awake during surgery have been studied recently (Bergman *et al.* 2012, Karlsson *et al.* 2012) and have involved experiences of struggling for control and feelings of helplessness, loss of control over decision-making and loss of body control. Karlsson *et al.* (2012) determined that patients' experiences in the theatre-room included being in a situation in which one is dependent on the staffs' expert-knowledge. Regardless of the patient's ability to act autonomously, ways of supporting patients to sustain the surgery procedure must be developed (Mauleon *et al.* 2007), and patients' experiences during surgery in the theatre room must be further explored.

When recovering from anesthesia in the PACU, the patients commonly progress along a continuum from dependence to independence, and during this process, the patient is vulnerable and in need of support (Humphreys 2005, Reynolds & Carnwell 2009). High-tech care environments with advanced apparatus have been experienced as frightening and are associated with stress for patients (Tunlind *et al.* in press) and

relatives (Engström & Söderberg 2004). High levels of noise are a well-documented reality in PACUs (Allaouchiche *et al.* 2002, Overman *et al.* 2008, Smykowski 2008), and conversations between staff, alarms from the monitoring equipment and groaning from other patients have been described as negative influences on recovery after surgery (Allaouchiche, *et al.* 2002, Johansson *et al.* 2002). Notably, patients in the PACU have perceived conversations between staff members as being more intrusive than the sounds from the equipment (Overman *et al.* 2008, Smykowski 2008).

The open setting in a PACU and the lack of privacy may result in a threatened integrity for the patients (Smykowski 2008). Patients have experienced a loss of dignity when other patients could hear or see different procedures in caring (Baillie 2009), and patients in a PACU have described overhearing staff discussions regarding issues that they were not intended to hear (Forsberg *et al.* 2011). The general impression of the stay in the PACU can be improved for the patients by having them listen to music with headphones (Shertzer & Fogel-Keck 2001, Easter *et al.* 2010). Nilsson (2008) reviewed that music interventions can have an effect on reducing patient anxiety and pain in the postoperative setting. Another important factor is the visitation of family members in the PACU, which was reviewed by Bonifacio and Boschma (2008). These visits have been shown to increase feelings of safety and decrease stress and anxiety for patients. Nevertheless, restrictions regarding visits in PACUs are common. Reasons for these limitations include the maintenance of the patients' integrity, a lack of space and an increased workload for the staff if their focus must also be directed towards the patients' relatives. When transferred from high-tech care settings to ward settings, the patients have reported feelings of insecurity because of the decrease in monitoring and that staff was not immediately close (McKinney & Deeny 2002, Forsberg *et al.* 2011), but also feelings of relief and peace (Forsberg *et al.* 2011). Patients have described a need for information and continuity regarding the transfer (Bailey 2010, Forsberg *et al.* 2011). As the number and complexity of the surgical procedures have increased, postoperative care has developed from a brief period of observation to a more prolonged period of monitoring and intervention in the PACU

(Whitaker *et al.* 2013). Few studies have explored the contact between patients and nurses in post-anesthetic high-tech settings (Reynolds & Carnwell 2009, Smedley 2012); this represents an under-researched area.

Quality of care

The concept of quality of care is broad, and its meaning varies depending on the culture and on who defines the concept, e.g., patients, relatives or staff (Wilde-Larsson *et al.* 2001). According to The National Board of Health and Welfare (2011:9), quality in healthcare is defined as the degree to which an activity meets established requirements. Patients' view on what is important in connection with the care they received is one aspect of the quality of care (Merkouris *et al.* 1999), and patient satisfaction has long been an established indicator of the quality of care (Attre 2001, Wilde-Larsson *et al.* 2001, Johansson *et al.* 2002, Danielsen 2007). In Sweden, a patient's rights are strongly defined. Regardless of gender, age or social status, the patient and/or their relatives should be completely informed, and the rights to autonomy and participation in their care are prominent (The National Board of Health and Welfare 2012). Crow *et al.* (2002) reviewed the evidence regarding the determinants of patient satisfaction. The most important factor across different settings was the patient-staff relationship, which included the information provided. According to Wilde *et al.* (1993), information needs are intertwined with participation needs. Being informed results in patients being able to understand and articulate their opinions.

In this thesis, the perspective regarding the perceptions of quality of care is based on a grounded theory model developed by Wilde *et al.* (1993). Patients' perceptions of the quality of care are formed by their encounters within an existing care structure and by their norms, expectations and experiences. This model of quality of care, which was generated from in-depth interviews with patients, consists of four interrelated dimensions: medical-technical competence of the caregivers, physical-technical conditions of the care organization, identity-orientated approach of the caregivers and

socio-cultural atmosphere of the care organization. Medical-technical competence includes examination, diagnosis, treatment and symptom alleviation. Physical-technical conditions include availability of medical-technical equipment, nutrition, a clean and comfortable physical environment, and access to the means of communication, such as radio, TV and access to staff. An identity-orientated approach includes the demonstration of a commitment to the patients' situation and patient encouragement with respect and empathy. Moreover, an identity-oriented approach includes informing patients in an intelligible manner and allowing patients to participate in decisions when they desire. The socio-cultural atmosphere includes patients' desires for a humane physical and administrative care-environment. Altogether, these four dimensions can be understood in light of two conditions: 'the resource structure of the care organization' and the 'patient's preferences' (Wilde *et al.* 1993).

Different conditions have an impact upon the patients' satisfaction with their care. These conditions can be divided in two broad areas; person-related conditions and external care conditions. The person-related conditions comprise aspects such as socio-demographic affinity, health condition, age, personality and commitments (Abrahamsen Grøndal 2012). A systematic review of 139 research-articles considering patient satisfaction with healthcare (Crow *et al.* 2002) has shown that older patients and healthier patients generally record the highest satisfaction with care, which is consistent with Danielsen *et al.* (2007). The effect of gender and socioeconomic status still appears to be unclear. Wilde-Larsson *et al.* (2002) reported no significant differences in satisfaction between men and women; however, Foss and Hofoss (2004) and Danielsen (2007) found that women reported somewhat lower satisfaction with their care than did men. Personality has been shown to be only marginally associated with patient satisfaction (Hendriks *et al.* 2006, Larsson & Wilde-Larsson 2010). The external care conditions comprise aspects such as the hospital, the ward and the staff (Abrahamsen Grøndal 2012). Patients have rated with greater satisfaction the quality of care in smaller hospitals (Holte *et al.* 2005) and when the clinics were staffed with

specialist nurses (Thorne *et al.* 2002). Studies (Janssen *et al.* 2000, Swan *et al.* 2003) have shown that patients' satisfaction with their care generally increases by having a single room in the ward. Patients in surgical wards have rated the staff's medical-technical skills as higher than that in medical wards (Murakami *et al.* 2010). Moreover, Franzen *et al.* (2008) found that a short waiting time in the emergency department was associated with high satisfaction with the staff's medical-technical competence.

The concept of quality of care used in this thesis, i.e., patients' views of what is important and satisfying in connection with the care that they receive (Wilde *et al.* 1993), may be related to Edvardsson's (2005) research. He summarized that when describing satisfying or dissatisfying care, patients indirectly describe their experience of an atmosphere in a care setting, i.e., an experience of a negative atmosphere seldom leads to an experience of satisfying care. This can be linked to Abrahamsen Grøndal (2012) who states that the physical environment is an external care condition that impacts on patients' satisfaction. The high-tech environment in the perioperative context may create a feeling of security in the care, mainly through continuous monitoring, but the practical design may hamper the overall expression of care for the patient (Tunlind *et al.* In press).

Heidegger *et al.* (2006) reviewed that few available studies have directly examined the quality of care from a patient perspective in perioperative care settings with validated instruments. They showed that patient satisfaction overall was high and that patient satisfaction in perioperative settings was determined by information and communication. In some studies, patients have reported satisfaction with their pain relief (e.g., Leinonen *et al.* 2001, Idvall *et al.* 2002) and the physical environment and dissatisfaction with the information received and the possibility to participate in their care (Leinonen *et al.* 2001). Moreover, Idvall *et al.* (2002) showed no differences in overall satisfaction scores between orthopedic patients and other surgical patients. Idvall and Berg (2008) found that orthopedic patients and other surgical patients had

similar assessments concerning their highest and lowest assessment of postoperative pain and concluded that postoperative pain management still needs to be improved, with the common goal of a high quality of care for patients in postoperative pain. Nurses have been shown to be more negatively biased (Idvall *et al.* 2002, Leinonen *et al.* 2003); patients have indicated satisfaction with their stay in a PACU, while nurses have occasionally described the environment as restless and overcrowded and have stated that patients were transferred to the ward too early (Leinonen *et al.* 2003). Patients have reported higher scores regarding their level of pain intensity than nurses, indicating that patients experience greater pain than nurses believe (Idvall *et al.* 2002). Gunningberg and Idvall (2007) found that areas for quality improvement in perioperative care include communication, trust and environment. Collaboration and continuity are crucial throughout the perioperative procedure (Kalkman 2010, Forsberg *et al.* 2011), and involving the patients in the decision-making and entire planning process for postoperative care is essential (Bailey 2010). Moreover, it is essential to determine what information is needed and how and when the information should be provided (Gunningberg & Idvall 2007). Patients' perceptions of quality of care in the perioperative context must be further explored and discussed in regard to this specific environment. Furthermore, patients should have the opportunity to provide free-text answers about improvement areas.

Postoperative recovery

Postoperative recovery is a broad concept that has been widely used and may have several meanings (Allvin 2009). In general, research in the qualitative context has focused on the patients' suffering due to specific diseases/injuries and their subjective experiences of recovery after surgery, e.g., Olsson *et al.* (2002) who have investigated patients' recovery after gastrointestinal cancer surgery. The research line in the postoperative recovery context has also been directed towards single symptoms or areas (Carr *et al.* 2005, Allvin 2009). When patients have ranked their feared postoperative symptoms, postoperative pain was most feared, followed by nausea and disorientation (Jenkis *et al.* 2001). Postoperative nausea and pain are among the major

perioperative concerns of most surgical patients (Chandrakantan & Glass 2011). In fact, despite the development of postoperative pain management, patients commonly experience pain after surgery (Richards & Hubbert 2007, Gagliese *et al.* 2008). A review (Nilsson *et al.* 2011) has demonstrated that the experience of postoperative pain is correlated with various interacting factors, such as previous pain experiences, anxiety, the type of surgical procedure, gender, and age. Surgical procedures after which severe or moderate pain could be expected include major abdominal gynecological surgery, major orthopedic surgery and abdominal laparotomy or thoracotomy (Dolin *et al.* 2002). Previous research indicates that women and younger patients tend to experience higher levels of pain postoperatively, but the reasons for this are not entirely clear (Nilsson *et al.* 2011). While there is a strong association with the extent of the surgical trauma, patients who undergo the same procedure exhibit significant variability in pain (Gagliese *et al.* 2008). Nausea is a common postoperative problem (Kehlet & Wilmore 2002, Zeits *et al.* 2004, Tong 2006) and may be experienced as being very uncomfortable (Kim *et al.* 2007). Several factors interact, such as the type of anesthesia, length and type of surgical procedure, gender, pain management and health status prior to surgery (Kehlet & Wilmore 2002, Chandrakantan & Glass 2011, Tong 2006). Female gender, the use of inhalation agents and intraoperative and postoperative use of opioids increase the risk for experiencing postoperative nausea (Tong 2006). Van den Bosch *et al.* (2005) identified correlations between feeling anxiety, pain and nausea.

To summarize, the aforementioned research is valuable but a patient's individual experience of the recovery after surgery is due to many interacting factors. To prepare and support the patients in regaining control and returning to normality after surgery, recovery must also be understood in its complexity and entirety from the contextual perspective of those who have experienced this (Allvin 2009). The framework that preceded the Postoperative Recovery Profile (PRP) multi-dimensional questionnaire used in this thesis, which has been developed for the self-assessment of general postoperative recovery, consists of four studies (Allvin *et al.* 2007, Allvin *et al.* 2008,

Allvin *et al.* 2009, Allvin *et al.* 2011). Their definition of postoperative recovery can be summarized as an extended and energy-requiring process of returning to normality and wholeness defined by comparative standards and is achieved by regaining control, which results in returning to preoperative levels of independence/dependence in daily life and an optimum level of wellbeing (Allvin *et al.* 2007). According to Allvin (2009), the recovery phase begins immediately after surgery and may be divided into short and long term perspectives. The short-term perspective has been suggested to last until three months after surgery, and the long-term perspective occurs from three months to one year after surgery.

While assessing multi-dimensional recovery after surgery, general postoperative instruments must be distinguished from disease-specific instruments (Kluivers *et al.* 2008). To enhance the efficacy of care, specific recovery protocols have been developed to reduce the length of hospitalization, such as after radical cystectomy (e.g., Arumainayagam *et al.* 2008). Some studies have investigated recovery in a day surgery context (e.g., Susilahti *et al.* 2004, Brattwall *et al.* 2011, Berg *et al.* 2011, Berg *et al.* 2012). Susilahti *et al.* (2004) emphasized the importance of increasing efforts in patient education for the prevention and management of pain, constipation, fatigue and incision wound aching. Brattwall *et al.* (2011) found that further pain management and procedure-specific information must be considered. Berg *et al.* (2011) suggested that different postoperative programs that depend on the surgical procedure must be developed. Berg *et al.* (2012) compared orthopedic, gynecological and general surgery patients using the Swedish Post-discharge Surgery Recovery (S-PSR) scale; these authors reported that orthopedic patients had recovered by a lower degree after two weeks compared with the other groups. Additionally, Allvin *et al.* (2011) explored orthopedic and abdominal inpatients using the PRP-scale. At the two and three month follow-ups, the orthopedic patients were less recovered than the abdominal patients. Falling is a common accident in older people (Jämsä *et al.* 2014), and postoperative recovery after common orthopedic surgical procedures varies and must be explored further (Berg *et al.* 2011). The decreased length of hospital stay after a surgical

procedure implies that the patients and their relatives must take additional responsibility earlier in the recovery procedure and that new ways to support the patients' autonomy must be explored (Johansson *et al.* 2005). Subsequently, there is a need for further research to explore the perceptions and profiles of postoperative recovery in a short-term perspective for specific groups of surgical patients, both for each patient and on a group level.

Measuring recovery is associated with certain considerations. One risk while measuring general functions is that the questionnaire captures variations of the individuals that are unrelated to the surgery. Poor baseline physical performance capacity has since a long time been shown to increase the risks for complications (Girish *et al.* 2001), and prolong the recovery after major surgery procedures (Lawrence *et al.* 2004). Predictors for recovery were preoperative physical conditioning and depression (Lawrence *et al.* 2004). Royse *et al.* 2010 found that baseline testing before surgery compared with postoperative values revealed a wide range of baseline scores between patients with similar underlying conditions. Brattwall *et al.* (2011) assessed the 4-week recovery after surgery for patients and predefined 'recovery' as being improved or recovered, keeping in mind that the surgical procedures studied may or may not be related to the status of the symptoms prior to surgery. Recovery has been discussed in the psychiatric context (Rudnick 2008, Roe *et al.* 2010). Recovery can be viewed as an outcome and/or a process; hence, these types of recovery are not mutually exclusive (Rudnick *et al.* 2008). Outcome-oriented recovery may deal with the 'cure' or remission of symptoms and often includes the goal of returning to a baseline status (Roe *et al.* 2010). Process-oriented recovery addresses an understanding of the human in his/her environment (Rudnick 2008), sometimes beyond the symptoms and instead related to maintaining personal goals (Deegan 1988).

The perioperative complexity and nursing care

As indicated in the aforementioned research, patients who undergo surgery are subjected to numerous factors that interact in a complex manner. To summarize, examples of such factors include patients' experiences of anxiety (Carr *et al.* 2005) and provision of information (Suhonen & Leino-Kilpi 2006) prior to and after surgery, the choice of anesthesia (Mauleon 2007), perceptions of pain (Gagliese *et al.* 2008) and nausea (Kehlet & Wilmore 2002), the resource structure of the care organization (Wilde *et al.* 1993) and the specific high-tech environment (Smykowski 2008). The underlying diagnosis (Olsson *et al.* 2002), type of surgical procedure (Kalkman *et al.* 2003) and expectations of health outcomes (Crow *et al.* 2002) are other factors that may influence patients' experiences of undergoing surgery. In addition, patients are transferred between different levels of care and interact with a number of professionals. Larsson & Wilde-Larsson (2010) considers satisfaction as to be intuitively appealing; patients have feelings of dissatisfaction/satisfaction with their care. Gornall *et al.* (2013) state that the perceptions of a poor quality of recovery will impair the feeling of satisfaction with the care, and the reverse perception may also be true: dissatisfaction with care may affect the patients' perception of their recovery.

How the complexity of undergoing surgery is managed depends highly on how the patients' needs are met by staff. Nurses drive much of today's perioperative care. Higher nurse education and fewer patients per nurse were shown to reduce the postoperative mortality for patients in a recent European study (Aiken *et al.* 2014). In the perioperative context, members of the perioperative team, e.g., nurses, assistant nurses and physicians, work together to provide safe care for the surgical patients (Quick 2011). Communication failures have shown to be the leading cause of inadvertent patient harm (Leonard *et al.* 2004). Hence, effective teamwork and communication between different professionals are essential in acute care settings (Leonard *et al.* 2004, Jacobsson *et al.* 2012). The formal leader in the team often is a physician (Jacobsson *et al.* 2012). However, nursing in the perioperative context also includes an autonomous role with specific responsibilities. For example, prior to

surgery, the ward-nurse is primarily responsible for monitoring, preparing and supporting the patient. After ordination by the anesthetist, the anesthesia-nurse is responsible for planning and executing general anesthesia in adult ASA I-II patients (ANIVA 2015). Postoperatively, the PACU nurse is primarily responsible for the monitoring, risk-assessment and treatment of symptoms (Smedley 2012) and independently assesses when the anesthetist should be contacted. Summarizing, pre-, intra-, as well as postoperatively, the response for providing the patient with safe and dignified care is based on nursing skill (Larsson Mauleon 2012). To facilitate this goal, the nurses in perioperative care must possess both specific and comprehensive knowledge (Reynolds & Carnwell 2009). This knowledge focuses not only on the medical issues associated with different types of anesthesia, a large amount of specific surgical procedures, and safe performance of technical interventions (Smedley 2012) but also includes an understanding of the patients' experiences and perceptions throughout the perioperative procedure. In general, current research has examined the perioperative experience in a piecemeal fashion, focusing on particular aspects of patients' experiences of undergoing surgery. Hence, a better understanding of the patient experience in its complexity is important to providing compassionate competent care (Susleck *et al.* 2007).

RATIONALE

The review above indicates that the patients' perioperative context has been well studied. The main focus of previous research has been on distinct aspects of the perioperative context, such as the experiences of pain or anxiety or considering the perspective of nurses. This research is valuable, and we are aware that during the perioperative procedure, patients are commonly disclosed to staff and in a situation of vulnerability. We also know that despite the development of knowledge and new techniques, undergoing a surgical procedure remains associated with complex and unmet needs for the patients. A patient undergoing surgery does not experience only certain aspects but is living through the entire procedure. Hence, to achieve a broader understanding and knowledge, there is essential that patients who undergo different types of surgery are provided the opportunity to describe their experiences and perceptions from different perspectives. There is a lack of research that ranges across the patients' experiences of undergoing surgery; from the time of decision, including the quality of care received at the hospital and their perceptions of the recovery period. Therefore, this thesis aims to explore patients' experiences of undergoing surgery, including the perceptions of quality of care and recovery. Hopefully, this work contributes to the development of an increased knowledge about the patients' needs while undergoing surgery.

AIM

The overall aim of this thesis was to explore patients' experiences of undergoing surgery, including their perceptions of quality of care and recovery.

The specific aims were as follows:

- to describe people's experiences of undergoing GBP surgery, from the decision making period prior to the GBP until two months after the GBP, thus including the care given at hospital (I).
- to describe people's experiences of suffering a lower limb fracture and undergoing surgery, from the time of injury through the care given at the hospital and recovery following discharge (II).
- to describe patients' perceptions of the quality of care during the perioperative period and to identify areas for quality improvements (III).
- to explore orthopedic and general surgery patients' perceptions of their postoperative recovery for one month (IV).
- to explore patterns of changes in patients' postoperative recovery over one month within different surgery groups (V).

METHODOLOGICAL APPROACH

Design

This thesis was conducted using a mixed methods design because the overall aim was to explore patients' experiences of undergoing surgery, including their perceptions of quality of care and recovery; using both qualitative and quantitative methods. Mixed methods encourage the use of multiple worldviews, which is useful when a complex problem is being researched (Creswell & Plano Clark 2011). This thesis comprises studies that employ qualitative (I, II) and quantitative (III, IV, V) approaches and methods (Table 1), and it has a multiphase design resulting from the inclusion of multiple projects linked by a common purpose that are conducted over time (cf. Creswell & Plano Clark 2011). The results from studies I and II indicate a need to explore the quality of the care given (III) and the recovery period after surgery (IV, V) in patients undergoing GBP and fracture surgery, as well as in patients undergoing other types of surgery.

Creswell and Plano Clark (2011) state that the purpose of using combined qualitative and quantitative methods is to obtain a better and broader understanding of the research problem/aim than can be achieved by either method alone. The qualitative studies (Table 1) aimed to describe patients' experiences of undergoing two specific surgical procedures (I, II), while the purpose of the research in this qualitative context is to gain an understanding of the individual's experience of a certain topic (cf. Holloway & Wheeler 2010). The studies employing a quantitative approach (Table 1) aimed to describe patients' perceptions of quality of care during the perioperative procedure (III) and explore patients' perceptions of their postoperative recovery (IV, V), while the research purpose in this quantitative context is to gain quantity knowledge for each patient (III, V) and at a group level (III, IV, V), that may be generalizable (cf. Dawson & Trapp 2004).

Table 1. Summary of the design, participants, data collection, and analysis (I-V).

Study	Design	Participants	Data collection	Data analysis
I	Qualitative Cross-sectional	10 women=8 men=2 age=md 42 years	Personal interviews	Qualitative content analysis
II	Qualitative Cross-sectional	9 women=5 men=4 age=md 53 years	Personal interviews	Qualitative content analysis
III	Quantitative Cross-sectional	170 women=104 men=66 age=m 55.9 years	Questionnaire (QPP)	Descriptive nonparametric statistics. Quantitative content analysis
IV	Quantitative Longitudinal	180* women=113 men=66 age=m 55.9 years	Questionnaire (PRP)	Descriptive and analytic statistical analyses
V	Quantitative Longitudinal	180* women=113 men=66 age=m 55.9 years	Questionnaire (PRP)	Descriptive and analytic statistical analyses

* Data on gender are missing for one participant

Context

The surgeries (I-V) were performed in a general central county hospital in Sweden that included a region comprising both rural and urban areas. The hospital has one intensive care unit (ICU), two post-anesthesia care units (PACUs), and several wards, e.g., surgical and orthopedic wards. There are no step-down units in the hospital. The PACUs consist of open environments with several beds and a centralized station for

staff with monitors, computers, and phones. One PACU is part of the ICU and is staffed mainly by ICU nurses. This PACU receives patients who have undergone major types of surgery, such as intra-abdominal or hip replacement surgery. The second PACU is a day surgery unit that is staffed mainly by anesthesia- or theatre nurses. In addition to patients undergoing outpatient procedures, this PACU also receives hospitalized patients.

Sample/participants

Study I and II

A purposive sample of participants was collected (I, II). This means that people who have experiences of a certain topic and can answer the aim of the study are selected (Polit & Beck 2008). The inclusion criteria were that the participants had undergone GBP surgery (I) or lower-limb surgery (II), were of age, were oriented to person and place, remembered most of the event and were willing to tell their story (I, II). A nurse in the surgical clinic (I) and two nurses in the orthopedic ward (II) contacted a total of 30 patients, respectively (I, II), when they returned for a follow-up visit one month after surgery (I) or before or after discharge from the hospital (II). The patients received an information letter and a request for participation (I, II). Ten (I) and nine (II) patients sent the letters back and were ultimately willing to participate (Table 1). All of participants (I) underwent a laparoscopic GBP under general anesthesia. The causes of the fractures (II) in participants who had undergone lower limb surgery were a car accident and different fall traumas. The types of injuries were femur fractures, tibia/fibula fractures, and ankle fractures. Seven participants were awake during the surgery, and two participants underwent general anesthesia.

Study III, IV and V

A consecutively sample of patients who were hospitalized in two general surgical wards and two orthopedic wards during specific days was collected (III, IV, V). The inclusion criteria (III, IV, V) included that the patients were of age, had undergone general or orthopedic surgery (Table 2), had been cared for in one of the PACUs, had

been hospitalized for at least 24 hours after surgery, and were assessed as being able to answer the questionnaire by the responsible nurse. The exclusion criteria included confusion and/or dementia. A total of 187 patients (III) and 189 patients (IV, V) were requested to participate. Of these patients, 170 patients participated in study III and 180 patients participated in study IV and V (Table 1). A total of 170 participants simultaneously participated in study III, IV and V by completing both questionnaires. The remaining ten participants only completed the Postoperative Recovery Profile (PRP) questionnaire (IV, V). After one month, a total of 167 patients participated in study IV and V and completed the PRP questionnaire a second time. Of these patients, 62 (37.1%) returned the questionnaire by post, and the remainder were reminded to answer the questionnaire or provide their answers via telephone.

Table 2. Overview of the sample (n=180) generated from two orthopedic and two general surgery wards. Numbers (n) and proportions (%) of participants distributed according to the different sites of surgery are presented below.

Orthopedic surgery <i>n=85 (47.2%)</i>	Participants <i>n (%)</i>	General surgery <i>n=95 (52.8%)</i>	Participants <i>n (%)</i>
Surgery/ankle fractures	10 (5.6)	Surgery/abdominal colon/ileum	30 (16.7)
Surgery/lower limb fractures	11 (6.1)	Surgery/laparoscopic GBP	39 (21.7)
Surgery/lower arm fractures	5 (2.8)	Surgery/thyroid	8 (4.4)
Surgery/femur fractures	8 (4.4)	Surgery/breast reconstruction	5 (2.8)
Surgery/shoulder fractures	3 (1.7)	Surgery/laparoscopic biliary	10 (5.5)
Surgery/hip replacement	18 (10.0)	Surgery/extirpation gland	3 (1.7)
Surgery/shoulder replacement	13 (7.2)		
Surgery/spinal stenosis	13 (7.2)		
Surgery/disc herniation	4 (2.2)		

Data collection

Study I and II

The data were collected via personal interviews with ten (I) and nine participants (II). Participants were asked to describe their experiences of being obese and undergoing

GBP surgery (I) or suffering a fracture and undergoing surgery (II). The aims of the studies were broad: to describe the experiences of undergoing GBP surgery, from the decision making period prior to the GBP until two months after the GBP, thus including the care given at hospital (I) and to describe experiences of suffering a lower limb fracture and undergoing surgery, from the time of injury through the care given at the hospital and recovery following discharge (II). Subsequently, the participants determined to a great extent the areas of importance that should be described. For example, if participants wished to talk about their bodily experiences during their recovery and/or about the quality of the care given, they had this opportunity. Downe-Wamboldt (1992) proposes that the intent of content analysis is not necessarily to document the shared meaning between the researcher and the researched, but rather to obtain freely descriptions on the topics of interest for a particular purpose. Therefore, I emphasized a neutral approach using open-ended questions in my role as an interviewer (I, II), which gave participants the opportunity to spontaneously describe their experiences and opinions. However, my perspective as a nurse working in perioperative settings and my insights regarding concepts such as quality of care certainly may have affected the follow-up questions and subsequent the direction of the interviews. Downe-Wamboldt (1992) theorizes that ‘what you see in the dark depends on where you choose to focus the light.’ and notes that this factum cannot be ignored. The participants were interviewed between one and two months after surgery (I) and between one month and one year after surgery (median [md]=6 months) (II). Participants were interviewed in their homes, at the University, or at their workplaces, in accordance with their preferences. The interviews lasted between 60 and 120 minutes (md=80 min) (I) and between 30 minutes and one hour (md=40 min) (II), and I recorded and transcribed all the interviews verbatim.

Study III, IV and V

The data collection was performed in the orthopedic and surgical wards 1 to 4 days (III, IV, V) after surgery and subsequently after one month post-surgery (IV, V). Patient-responsible nurses in the surgical and orthopedic wards selected patients who

fulfilled the criteria for participation from the patient ledger. The patient-responsible nurses disclosed the room numbers to me. I asked the patients for their consent to participate and provided verbal and written information about the studies. I distributed the questionnaires and subsequently collected them after completion. Participants registered their personal and surgical characteristics after providing their informed consent (Table 3). I registered certain data such as blood-loss and ASA-classification via contact with the patient-responsible nurse. The QPP (III) and the PRP (IV, V) questionnaires were completed in the ward. A total of 70 (41.0%) (III) and 73 (40.6%) (IV, V) participants were unable to complete the questionnaire because of physical limitations, and I assisted these participants. The PRP questionnaire (IV, V) was completed twice. An additional copy of the PRP questionnaire was provided to participants in the ward with a request to complete and return it one month after surgery. Participants were asked to submit their phone number for a reminder call regarding the completion of the second PRP questionnaire.

Table 3. Characteristics of the patients distributed on orthopedic and general surgery groups (n=180). The internal loss was less than 2%.

Characteristic	Orthopedic surgery n=85 (47.2%)	General surgery n=95 (52.8%)
Gender, n (%)		
Men	36 (42.4)	30 (31.9)
Women	49 (57.6)	64 (68.1)
Age m (SD)		
	62.4 (17.8)	49.9 (15.2)
Education, n (%)		
Primary school	36 (42.9)	20 (21.3)
High school	34 (40.5)	53 (56.4)
University	14 (16.6)	21 (22.3)
Type of anesthesia, n (%)		
General	54 (64.3)	92 (96.8)
Regional	30 (35.7)	3 (3.2)
Type of surgery, n (%)		
Acute	50 (58.8)	15 (15.8)
Elective	35 (41.2)	80 (84.2)

Instruments

Study III

Quality from Patient's Perspective (QPP)

Data on patients' perceptions of the quality of care (III) were collected using the short form of the QPP questionnaire (Wilde-Larsson *et al.* 2002) entitled 'surgery'. The original QPP questionnaire has been tested for validity and internal consistency (Larsson *et al.* 1998, Wilde-Larsson & Larsson, 1999, Wilde-Larsson 2000) with acceptable results. The 33 QPP items (Table 4) reflect the following four dimensions of the theoretical model: medical-technical competence of the caregivers, physical-technical conditions of the care organization, identity-orientated approach of the caregivers, and socio-cultural atmosphere of the care organization (Wilde *et al.* 1993). Each item consists of a statement such as 'the nurses in the PACU encountered me with respect.' The response is graded using a four-point Likert scale that ranges from 'fully agree' to 'do not agree at all.' Each item is also evaluated using a four-point scale based on its importance, from 'the utmost importance' to 'no importance at all.' Subsequently, all of the items are evaluated in two ways, namely, by perceived reality and subjective importance. Participants could also answer 'not applicable', and they were told to write 'do not remember' if they did not remember. They were also invited to respond to the following two free-text questions at the end of the questionnaire: 'I was especially satisfied with...' and 'Can you suggest improvements?' The participants were told to provide comments if there were any questions that engaged them or seemed strange.

Table 4. The 33 items in the QPP questionnaire entitled ‘surgery’, distributed on the factors and four dimensions.

QPP questions distributed on dimensions and factors

Identity-orientated approach of the caregivers

Information (7)

- Good information about the surgery prior to surgery
- Good information about the anesthesia prior to surgery
- Good information about what to expect in the theatre-room
- Good information about the stay in the PACU
- Best possible information about monitoring in the PACU
- Best possible information about medications in the PACU
- Good information about which PACU-nurse responses for the care

Participation (3)

- Good opportunities to participate in decisions in my care in the theatre-room
- Good opportunities to influence my body position in the theatre-room
- Good opportunities to participate in decisions in my care in the PACU

Empathy, respect and commitment (12)

- Physicians in the theatre-room seemed to understand my experienced situation
- Physicians in the theatre-room encountered me with respect
- Physicians in the theatre-room showed commitment
- Nurses in the theatre-room seemed to understand my experienced situation
- Nurses in the theatre-room encountered me with respect
- Nurses in the theatre-room showed commitment
- Physicians in the PACU seemed to understand my experienced situation
- Physicians in the PACU encountered me with respect
- Physicians in the PACU showed commitment
- Nurses in the PACU seemed to understand my experienced situation
- Nurses in the PACU encountered me with respect
- Nurses in the PACU showed commitment

Medical technical competence of the caregivers

Physical care (1)

- Best possible physical nursing care in the PACU

Medical care (5)

- Effective pain-relief in the PACU
- Effective treatment for nausea in the PACU
- Best possible medical surveillance in the PACU
- Best possible anesthesia procedure performed
- Best possible surgery procedure performed

Physical-technical conditions of the care organisation

Care equipment (1)

- Access to equipment necessary for my care (PACU)

Socio-cultural atmosphere of the care organization

General atmosphere (3)

- There was a pleasant atmosphere in the theatre-room
- There was a good orderliness in the theatre-room
- There was a pleasant atmosphere in the PACU

Routines (1)

- The care in PACU was based on my needs

Study IV and V

Postoperative Recovery Profile (PRP)

The instrument used for study IV and V was the PRP (Table 5). The PRP is a multi-dimensional, multi-item questionnaire for the self-assessment of postoperative recovery (Allvin *et al.* 2009, Allvin *et al.* 2011) which shows good construct validity and the ability to discriminate between recovery profiles in different groups (Allvin *et al.* 2011). The PRP can provide profiles of recovery for each individual and the group at item, dimensional, and global levels. We used the PRP version that consisted of 17 items for hospitalized patients, and each item was assessed based on the previous 24 hours. The items reflect the following dimensions: physical symptoms, physical functions, psychological, social, and activity (Table 5). All items were assessed using the following response categories: severe, moderate, mild, and none (Allvin *et al.* 2011). The overall global score of recovery is defined as the number of the 17 items assessed as *none*, and the category *none* was exclusively calculated. The global score of recovery has a variance ranging from 0-17 in the PRP for hospitalized patients. For example, if 14 items are assessed as 'none', an indicator sum of 14 is assigned. The indicator sums have in a previous study (Allvin *et al.* 2011) by a RPTA-analyze for paired ordinal data been converted to the following verbal category scale: fully recovered, almost fully recovered, partly recovered, slightly recovered, and not at all recovered. For assessing recovery on a dimensional level, the highest assessment within each dimension defines the level of recovery. For example within the physical dimension, if pain is assessed as severe and the other items are assessed as mild, the total score for the dimension is severe.

Table 5. The 17 items in the PRP questionnaire distributed on the five dimensions.

PRP items distributed on dimensions	
Dimension	Item
<i>Physical symptoms</i>	Pain Nausea Fatigue Appetite change Sleeping difficulties
<i>Physical functions</i>	Gastrointestinal function/problems Bladder function/problems Mobilization/problems Muscle weakness
<i>Psychological</i>	Anxiety and worry Feeling down Feeling lonely/abandoned Difficulty concentrating
<i>Social</i>	Limited social activities Dependence on others Interested in surroundings
<i>Activity</i>	Personal hygiene/problem

Data analysis

Study I and II

Data (I, II) were analyzed using a qualitative content analysis according to Downe-Wamboldt (1992). We performed an analysis with manifest categories whereas the aims of the studies (I, II) were to describe peoples' experiences of undergoing surgery throughout two different surgical procedures. Our foremost intention with study I and II was not to interpret the meaning of living through these procedures, but to describe these patients' experiences. This is in accordance with Downe-Wamboldt (1992), who states that content analysis provides a systematic means to make inferences from verbal or written data in order to objectively describe a topic of interest. We sought after patterns of differences and similarities for the individual and for the groups (I, II) in these determinate procedures. Content analysis can be used for several purposes such as revealing with the focus on the individual and/or group in their contextual setting (Downe-Wamboldt 1992).

During the analysis of studies I and II, each interview was read through several times to gain a sense of the content. The chronological time frame, i.e., pliability to the perioperative procedure that was lived through, was prominent in the aims of the studies and during the interviews; the participants wanted to tell their story in a chronological way. The data analysis was subsequently influenced by these occurrences. According to Downe-Wamboldt (1992), there is no single meaning to be discovered in the data; rather, multiple meanings can be identified depending on the purpose of the study. 'Where and when' the patients' experiences took place was assessed as important to preserve. Therefore, the interview-texts were first coded into three parts; before surgery, the episode of care and after homecoming, and the text-units were then identified accordingly. Downe-Wamboldt (1992) describes the relevance of using a coding system for sorting the text. The text units were condensed and sorted into categories related to the context of the perioperative procedure, but also into further codes such as 'needs of information prior to surgery.' According to Downe-Wamboldt (1992), the analyst must be cognizant of the context and must justify the results in terms of the environment or context that produced the data. In our results (I, II), the categories refer to the descriptive level of the content; expressions of the manifest content of the text.

To also deepen the analysis and reach the latent content emerging from the text, and formulate this, one theme each for studies I and II was ultimately analyzed, and we used Catanzaro (1988) as a support to perform this part. According to Catanzaro (1988) in a latent content analysis, the researcher views each passage of the textual material within the context of the entire text. The analysis of what the text is about involves an interpretation of the underlying message of the text. The content uttered as themes can be viewed as expressions of the latent content of the text (Catanzaro, 1988). Finally, a progressive refining of the findings was achieved by moving back and forth between the original texts and the output of the content analysis (cf. Downe-Wamboldt 1992).

Study III

The statistical analyses in study III were performed in SPSS, version 21 (SPSS. Inc., Chicago, IL, USA), using descriptive statistics, which are reported as proportions for categorical variables. The four-point scales were dichotomized into two-point scales, and two alternatives emerged. The alternatives associated with 'perceived reality' were transferred to 'satisfied' and 'not satisfied', and the alternatives associated with 'subjective importance' were transferred to 'important' and 'not important.' The proportions assessed as 'not satisfied' or 'not important' were implicit, and the participants who responded with 'not applicable' or 'did not remember' were not included. The Government of Sweden (ds:2002:23) has criticized the fact that patient satisfaction surveys often tend to show unrealistically high satisfaction (80-90%) compared with the number of registered complaints. Therefore, the percentages of satisfaction below 80% were assessed as 'poorer satisfaction'.

Analyses of the free text questions (III) were performed using manifest content analyses in which text units were quantified (cf. Catanzaro 1988). The framework used was the quality of care model developed by Wilde *et al.* (1993), when the analysis should permit generalizations from the analyzed text to a theoretical model (Catanzaro 1988). Manifest content analysis is a typical quantitative technique that is applied to qualitative data forms, and the object of the analysis is the manifest content of the textual material (Catanzaro 1988). The free text answers were first roughly categorized and counted according to the model of Wilde *et al.* (1993). The text units within the respective areas were then counted, taking to account the two free-text questions and the perioperative procedure. The items in the questionnaire and the free text are presented as a story, according to the model of Wilde *et al.* (1993), because we found that visualization of the entire procedure was important.

Study IV

Statistical analyses (IV) were performed using SPSS, version 21 (SPSS. Inc., Chicago, IL, USA). Descriptive statistics reported as numbers and proportions were used for

categorical variables. Mean-values were used for quantity variables. The four-point scale was dichotomized into two-point scales, and two alternatives emerged: severe/moderate and mild/none. Moderate pain transferred to the visual analog scale (VAS) or numerical rating scale (NRS) is defined as >3 , and severe pain corresponded to a score >7 . Mild or no pain was defined as <3 (Dolin *et al.* 2002). The proportions assessed as mild/none were implicit, and the proportion of internal losses was under 2%. The five-point category scale was used for the global assessment of postoperative recovery: A=fully recovered (indicator sum 17), B=almost fully recovered (indicator sum 13-16), C=partly recovered (indicator sum 8-12), D=slightly recovered (indicator sum 7), and E=not recovered at all (indicator sum <7). This scale was then converted to a four-point scale in which the two last categories were merged; DE= D not recovered at all (indicator sum 7 or <7).

Statistical analysis was performed to analyze differences between two groups, and P-values <0.05 denoted statistical significance. Chi-square tests were performed to analyze nominal data, and Student's independent sample T-tests were used to analyze the quantity data. Mann-Whitney U-tests were used to analyze ordinal data, and those were performed using the original four-point scales and not the dichotomized two-point scales. The converted four-point scale was used to analyze the global assessment of postoperative recovery.

Study V

The statistical analyses were performed using SPSS, version 21, and using a free software program (Avdic & Svensson 2009). The changes in recovery on dimensional and global levels between the two occasions were evaluated by a statistical method developed specifically for analyzing changes in paired ordered data over time (Svensson 1998, Svensson 2007). This method provides the possibility to make available the entire data set and evaluate the systematic changes attributable to the group, separate from the eventual occurrence of individual heterogeneity. Such an evaluation of the sources of the changes shed light on whether the patient-group is

homogenous and/or whether significant individual variations are prominent (Svensson 2007).

For the global assessment of recovery, the five-point scale was used (Allvin *et al.* 2011), but converted to a four-point scale; A = fully recovered (indicator-sum 17), B = almost fully recovered (indicator-sum 13-16), C = partly recovered (indicator-sum 8-12), D = slightly recovered (indicator-sum 7) and E = not at all recovered (indicator-sum <7). The two last categories (D and E) were merged into D = not at all recovered. For the dimensional assessment of recovery, the four-point scale was used; A = none, B = mild, C = moderate and D = severe. The individual pairs of ordered categorical assessments were distributed in square contingency tables, on a global and dimensional level. A square contingency table includes paired data from the same individual and gives information about the assessed individual changes in discomfort/problems between two endpoints (Svensson 2005). The patients located on the main diagonal (from the lower left to the upper right corner) have assessed their discomfort as the same on both occasions, i.e., unchanged (PA %). The pair of data below the main diagonal represents the patients who have assessed lower levels of problems at the second occasion one month after surgery and are improved compared with the first occasion (day 1-4 after surgery) (PI%). The pair of data above the main diagonal subsequently represents the patients who have assessed a higher level of problems one month after surgery compared with the first occasion (cf. Svensson 2007).

The relative position (RP) is a measurement for the systematic group change and expresses the extent to which the frequency distribution of scale assessments on the follow-up occasion one month after surgery is shifted towards higher rather than lower categorical levels, compared with the first occasion (day 1-4 after surgery). Possible values of RP range from -1 to 1. A systematic shifting towards lower levels of problems/difficulties (improvement) one month after surgery is indicated by a negative RP and vice versa. The relative rank variance (RV) is a measure of the individual

variance in the change that is unexplained by the assessment of the systematic group change. The higher value ($RV < 1$), the more heterogeneous the pattern of change is. If the paired data from each patient are equally scattered over the contingency table, the RV will be 1. The RP and RV values are indicated as statistically significant on at least a 5% level by the 95% confidence interval, if this does not cover 0 (Svensson 2007).

Ethical considerations

Approval for performing the project was provided by the Regional Ethics Review Board (dnr 1230-10). The medical directors of the ICU and the orthopedic and surgical clinics were contacted and gave their permission for us to perform this project. Each participant (I-V) signed a consent form, and confidentiality was guaranteed.

Assurances were given that participation was voluntary and that a declining to participate should not affect their care. The participants were also assured that they could withdraw without providing any explanation. Participants were also given opportunities to talk about any feelings evoked by their participation in the studies and they received my mail address and phone-number at my workplace in case they had any concerns. The Data were stored in a locked space and only the researchers had access to this area.

RESULTS

The overall aim of this thesis was to explore patients' experiences of undergoing surgery, including perceptions of quality of care and recovery (I-V). Different chronological perspectives were explored in the studies (I-V), as follows; from approximately one year prior to surgery to approximately two months after surgery (I), from the time of the injury to approximately six months after surgery (II), from the stay at the ward prior to surgery to discharge from the PACU (III) and from days 1-4 to one month after surgery (IV, V).

Patients experiences of undergoing surgery, including their perceptions of the quality of care and recovery

Summary of results

Study I: From reaching the end of the road to a new lighter life – People's experiences of undergoing gastric bypass surgery

This study aimed to describe people's experiences of undergoing GBP surgery, from the decision making period prior to the GBP until two months after the GBP, thus including the care given at hospital.

The following theme emerged from the analysis; 'from reaching the end of the road to a new lighter life'. During the period prior to the GBP surgery, the patients described feelings of inferiority related to their obesity, and they chose to undergo surgery. The patients described that they could no longer handle their obesity and were well informed and motivated prior to surgery. Immediately after surgery in the PACU, patients remembered feelings of being both omitted and safe in the high-technological environment. Vulnerability and a feeling of being completely dependent on staff were expressed especially in connection with awakening. To feel safe, the patients needed immediate closeness to staff, orientation in time and space and information about the result of the surgery. Relief that the surgery was completed and expectations about starting their new lives were expressed. The patients appreciated arriving to the ward and being able to move freely. Some patients stated that they missed the closeness to

the staff in the PACU. The patients remembered that they felt both fear and expectation prior to their discharge home. Although they were well informed prior to surgery, it was difficult for them to imagine how their recovery after homecoming would be. However, all patients stated that the difference in daily life was enormous and that they now felt a new motivation. The patients related to their life prior to surgery and felt that in spite of the discomfort the surgery brought it was worth it so far; their whole life was new.

Study II: People's experiences of suffering a lower limb fracture and undergoing surgery

This study aimed to describe people's experiences of suffering a lower limb fracture and undergoing surgery, from the time of injury through the care given at the hospital and recovery following discharge.

The following theme emerged from the analysis; 'from realizing the seriousness of the injury to regaining autonomy'. Patients who suffered a lower limb fracture described that at the time of the injury, they experienced a new, unexpected situation for which they were not prepared. They expressed feelings of frustration and helplessness when they realized the seriousness of their injury but also relief that they had not sustained a worse injury. The waiting prior to surgery was strained and painful. The patients remembered that they felt a need to know what should happen in the future. A majority of the patients were awakened during the surgery. They described that they felt vulnerable during surgery and expressed a need to hand themselves over to staff. The patients experienced many of the events during their surgery via hearing and appreciated when the staff informed them of what happened and why. After surgery in the PACU, the patients described a need to have control and to feel safe in their new situation. Believing that the staff members were experienced and had control contributed to a feeling of safety. After arrival to the ward, some patients described feelings of helplessness related to for example, mobility difficulties. The patients' desired concrete information and learned best when the staff provided gradual

explanations while the patients performed the moments. The recovery after discharge was an extended process. The patients were dependent on the support of people in the environment for a long period of time, and they described difficulties in assessing normal versus abnormal recovery.

Study III: Patients' perceptions of quality of care during the perioperative procedure

This study aimed to describe patients' perceptions of the quality of care during the perioperative period and to identify areas for quality improvements.

Research questions

- Which degree of importance was perceived within each area?
- Which degree of satisfaction was perceived within each area?
- Which aspects in the care that was received were perceived as requiring improvement?

Table 6. Percentages (%) in each QPP area for internal loss and valid percentages (%) and medians (MD) for those who perceived satisfied and rated important. Scale ranged from 0-3, lower values on MD indicate better quality. The numbers (n) of roughly categorised comments in free-text are also reported below.

	Internal loss %	Satisfied MD (%)	Important MD (%)	Free-text n
<i>Identity-orientated approach of the caregivers</i>				
Information (7)	12.0	1 (67.7)	0 (78.9)	15
Participation (3)	23.2	2 (49.1)	1 (60.5)	43
Empathy, respect and commitment (12)	24.3	0 (93.2)	0 (94.9)	77
<i>Medical-technical competence of the care-givers</i>				
Physical care (1)	41.2	0 (84.0)	0 (91.3)	-
Medical care (5)	20.7	0 (93.5)	0 (96.0)	34
<i>Physical-technical conditions of the care organisation</i>				
Care equipment (1)	11.8	0 (92.7)	0 (96.6)	31
<i>Socio-cultural atmosphere of the care organisation</i>				
General atmosphere (3)	7.8	0 (86.6)	0 (89.4)	9
Routines (1)	16.5	0 (87.3)	0 (92.7)	-

Number of participants (n=170), number of items in the questionnaire (n=33), and number of roughly categorised comments (n=209). The rates of satisfaction and importance below 80% were assessed as being of poor quality.

As shown in Table 6, overall, patients assessed their quality of care as quite good, reporting high degrees of importance and satisfaction within most areas. A vast majority of the patients assessed that they were satisfied with the encouragement and the medical treatment from physicians and nurses during the perioperative procedure. The areas that were identified for certain quality improvements were ‘information’ and ‘participation’. A majority of the patients assessed that prior to surgery, they received satisfying information about the surgery and anesthesia. Thus, barely approximately two-thirds of patients were satisfied with the information that they received prior to surgery about the stay in the theatre room and approximately half were satisfied with the information about the stay in PACU. The proportion of the patients who assessed that it was important for them to participate in decisions concerning their care in the theatre room and in the PACU was relatively low, as was the proportion of patients who were satisfied with this area. The patients highlighted that they felt vulnerable in the high-technological environment and stated that they lacked knowledge. Rather than a need to participate in decisions, they expressed a need to hand over decisions to staff and to trust that the staff had knowledge.

Study IV: Patients’ perceptions of their postoperative recovery for one month

This study aimed to explore orthopedic and general surgery patients’ perceptions of their postoperative recovery for one month.

Research areas

- To explore differences and patterns in recovery between orthopedic and general surgery patients on the first occasion (day 1-4 after surgery) and after one month.
- To explore the five problems perceived as severe/moderate by most patients distributed on the orthopedic and general surgery groups on the first occasion (day 1-4 after surgery) and after one month.
- To explore the differences and patterns in assessment of global recovery within the major groups of orthopedic and general surgery patients.

Table 7. The number (n) and percentage (%) of orthopedic and general surgery patients who evaluated each item as severe or moderate (S/M). The percentages who evaluated items as mild or none are implicit. The internal loss was under 2%.

Dimension	Item	PRP 1: In the acute phase			PRP 2: After one month		
		Orthopedic surgery n=85	General surgery n=95	P	Orthopedic surgery n=76	General surgery n=91	P
		S/M n (%)	S/M n (%)		S/M n (%)	S/M n (%)	
<i>Physical symptoms</i>	Pain	64 (75.3)	53 (55.8)	0.000	30 (39.5)	7 (7.7)	0.000
	Nausea	14 (16.5)	26 (27.4)	0.042	4 (5.3)	2 (2.2)	0.232
	Fatigue	42 (49.4)	39 (41.1)	0.255	29 (38.1)	15 (16.5)	0.001
	Appetite change	24 (28.2)	46 (48.4)	0.015	15 (19.7)	31 (34.1)	0.145
	Sleeping difficulties	50 (58.8)	54 (56.8)	0.346	33 (43.4)	10 (11.0)	0.000
<i>Physical functions</i>	Gastrointestinal /problems	27 (31.7)	27 (28.4)	0.858	13 (17.1)	19 (20.9)	0.103
	Bladder function /problems	9 (10.6)	15 (15.8)	0.101	2 (2.6)	4 (4.4)	0.143
	Mobilization /problems	58 (68.2)	36 (37.9)	0.000	31 (40.8)	11 (12.1)	0.000
	Muscle weakness	34 (40.0)	22 (23.1)	0.012	35 (46.6)	11 (12.1)	0.000
<i>Psychological</i>	Anxiety and worry	12 (14.1)	9 (9.5)	0.957	14 (18.4)	7 (7.7)	0.003
	Feeling down	10 (11.8)	7 (7.4)	0.368	13 (17.1)	8 (8.8)	0.000
	Feeling lonely /abandoned	6 (7.1)	4 (4.2)	0.838	12 (15.8)	3 (3.3)	0.007
	Difficulty concentrating	16 (18.8)	11 (11.6)	0.427	12 (15.8)	5 (5.5)	0.001
<i>Social</i>	Limited social activities	33 (38.8)	13 (13.7)	0.000	36 (47.4)	9 (9.9)	0.000
	Dependence on others	60 (70.6)	21 (22.1)	0.000	39 (51.3)	11 (12.0)	0.000
	Interested in surroundings	15 (17.6)	14 (14.7)	0.528	4 (5.3)	2 (2.2)	0.167
<i>Activity</i>	Personal hygiene /problem	45 (52.9)	15 (15.8)	0.000	18 (23.7)	3 (3.3)	0.000

Table 8. A top-five priority profile of the five items that were most commonly perceived by participants as being severe/moderate problems, at the endpoints during recovery.

PRP 1: In the acute phase		PRP 2: After one month	
<i>Orthopedic surgery</i> <i>n=85</i>	<i>General surgery</i> <i>n=95</i>	<i>Orthopedic surgery</i> <i>n=76</i>	<i>General surgery</i> <i>n=91</i>
1 Pain	Sleeping difficulties	1 Dependence on others	Appetite changes
2 Dependence on others	Pain	2 Limited social activities	Gastrointestinal function
3 Problems with mobilization	Appetite changes	3 Muscle weakness	Fatigue
4 Sleeping difficulties	Fatigue	4 Sleeping difficulties	Muscle weakness
5 Problems/personal hygiene	Problems with mobilization	5 Problems with mobilization	Problems with mobilization

Table 9. Global assessment of recovery (A = fully recovered, B = almost fully recovered, C = partly recovered, D = not at all recovered) in the acute phase after surgery and one month after surgery, reported as numbers of participants (n) and percentages (%). The significant differences between the entire groups and within groups are presented below.

Groups	PRP 1: In the acute phase <i>n=180</i>				PRP 2: After one month <i>n=167</i>			
	A	B	C	D	A	B	C	D
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Orthopedic surgery	0 (0.0)	1 (1.2)	35 (41.2)	49 (57.6)	0 (0.0)	14 (18.4)	28 (36.8)	34 (44.7)
Fracture surgery	0 (0.0)	0 (0.0)	14 (37.8)	23 (62.2)	0 (0.0)	5 (16.1)	12 (38.7)	14 (45.2)
Joint replacement	0 (0.0)	1 (3.2)	15 (48.4)	15 (48.4)	0 (0.0)	3 (10.7)	9 (32.1)	16 (57.1)
General surgery	3 (3.2)	6 (6.3)	42 (44.2)	44 (46.3)	9 (9.9)	42 (46.2)	29 (31.9)	11 (12.1)
GBP surgery	2 (5.1)	2 (5.1)	20 (51.3)	15 (38.5)	5 (13.5)	19 (51.4)	12 (32.4)	1 (2.7)
Colon/ileum surgery	0 (0.0)	0 (0.0)	11 (36.7)	19 (63.3)	1 (3.3)	11 (36.7)	11 (36.7)	7 (23.3)
General/orthopedic others	1 (2.4)	4 (9.5)	16 (38.1)	21 (50.0)	3 (7.5)	17 (42.5)	13 (32.5)	7 (17.5)

PRP 1: **Orthopedic/general surgery**, $p=0.054$; Fracture/joint surgery, $p=0.224$; GBP/colon/ ileum, $p=0.023$.

PRP 2: **Orthopedic/general surgery**, $p=0.000$; Fracture/joint surgery, $p=0.344$; GBP/colon/ ileum, $p=0.009$.

Overall, patients who had undergone orthopedic surgery were significantly less recovered than patients who had undergone general surgery (Table 7 and 9). As shown in Table 7, approximately two-thirds of the orthopedic patients' and half of the general surgery patients assessed that they had experienced severe or moderate pain at the first occasion (day 1-4 after surgery). Within the orthopedic group, patients assessed that they were less recovered from certain problems in the psychological dimension after one month than at the first occasion (Table 7). As shown in Table 8, the ranking of problems that were assessed as severe/moderate differed between the orthopedic and general surgery groups, and after one month, the priority profile was substantially changed. Within the group of patients who had undergone general surgery, significant differences in the global assessment of recovery emerged between patients who had undergone a GBP and patients who had undergone abdominal surgery (colon/ileum), at the first occasion as well as after one month (Table 9). The orthopedic group seemed to be more homogenous. Within the orthopedic group, no significant differences emerged in the global assessment of recovery for patients who had undergone fracture surgery and patients who had undergone replacement surgery at the first occasion or after one month (Table 9). Patients who had undergone GBP surgery were generally more recovered than the other groups (Table 9). Patients who had undergone GBP also highlighted that they had improved after one month compared with the period prior to surgery.

Study V: Patterns of changes in patients' postoperative recovery from a short-term perspective

Considerations were raised about the method chosen to measure homogeneity within groups, and there was no measure of changes in recovery over time in study IV.

Therefore, this study aimed to explore patterns of changes in patients' postoperative recovery over one month within different surgery groups.

Research areas

- To explore the patterns of changes in global recovery between the first occasion (day 1-4 after surgery) and one month for the major surgical groups; orthopedic

and general surgery respective acute and elective surgery, and for the following subgroups: GBP patients, joint replacement patients, fracture patients and open abdominal patients.

- To explore the patterns of changes in dimensional recovery between the first occasion (day 1-4 after surgery) and one month for GBP patients, joint replacement patients, fracture patients and open abdominal patients.

Table 10. Personal characteristic and perioperative variables distributed on the major surgical groups (**bold**) (orthopedic, general, acute, elective) and the subgroups (fracture, joint replacement, GBP, open abdominal). The internal loss was < 2%.

<i>Groups of patients</i>	Personal characteristic and perioperative variables				
	<i>Gender m/w</i>	<i>Age</i>	<i>Living alone</i>	<i>Anxiety prior</i>	<i>ASA III or more</i>
	<i>n (%)</i>	<i>m (SD)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Orthopedic surgery, n= 85	36/49 (42/58)	62 (18)	26 (31)	37 (44)	26 (31)
General surgery, n= 95	30/64 (32/68)	50 (15)	24 (25)	60 (63)	21 (23)
Acute surgery, n= 65	27/38 (42/58)	58 (19)	23 (35)	31 (48)	17 (26)
Elective surgery, n= 115	39/75 (34/65)	55 (16)	27 (24)	66 (57)	30 (26)
Fracture surgery, n= 37	17/20 (46/54)	54 (21)	12 (32)	19 (51)	8 (22)
Joint replacement, n= 31	10/21 (32/68)	72 (12)	9 (29)	8 (26)	15 (48)
GBP surgery, n= 39	7/32 (18/82)	41 (9)	7 (18)	28 (72)	9 (24)
Open Abdominal, n= 30	13/17 (43/57)	61 (14)	12 (40)	17 (57)	8 (27)

Table 11. The measures of the proportions of unchanged assessments (PA), proportions of improved assessments (PI), systematic group changes; relative position (RP) and individual variability; relative rank variance (RV) on global level between the first occasion (day 1-4 after surgery) and one month after surgery. The 95% confidence interval (CI) was used to denote the significances. Significant values are bold.

<i>Global level</i>	Day 1-4 after surgery/After one month			
	<i>Orthopedic surgery n=76</i>	<i>General surgery n=91</i>	<i>Acute surgery n=58</i>	<i>Elective surgery n=101</i>
PA %	50	27	50	31
PI %	38	68	43	61
RP (CI)	-0.22 (-0.36; -0.09)	-0.56 (-0.67; -0.46)	-0.30 (-0.45; -0.16)	-0.47 (-0.57; -0.36)
RV (CI)	0.11 (0.03; 0.19)	0.10 (0.03; 0.17)	0.07 (0.00; 0.14)	0.12 (0.05; 0.19)
<i>Global level</i>	<i>Orthopedic surgery</i>		<i>General surgery</i>	
	<i>Fracture surgery n=31</i>	<i>Joint replacement n=28</i>	<i>GBP surgery n=37</i>	<i>Open abdominal surgery n=30</i>
PA %	65	50	16	37
PI %	35	21	78	63
RP (CI)	-0.30 (-0.46; -0.15)	0.07 (-0.18; 0.31)	-0.64 (-0.79; -0.49)	-0.55 (-0.71; -0.38)
RV (CI)	0.02 (0.00; 0.05)	0.17 (0.00; 0.36)	0.13 (0.00; 0.27)	0.04 (0.00; 0.10)

The RP and RV values are indicated to be statistically significant on at least 5% level by the 95% confidence interval if this does not cover 0.

Table 12. The dimensional measures of the proportions of unchanged assessments (PA), proportions of improved assessments (PI), systematic group changes; relative position (RP) and individual variability; relative rank variance (RV) on dimensional level between the first occasion (day 1-4 after surgery) and one month after surgery. The 95% confidence interval (CI) was used to denote the significances. Significances are bold.

<i>Dimensional level</i>	Day 1-4 after surgery/After one month			
	<i>Orthopedic surgery</i>		<i>General surgery</i>	
	<i>Fracture surgery n=31</i>	<i>Joint replacement n=28</i>	<i>GBP surgery n=37</i>	<i>Open abdominal surgery n=30</i>
<i>Physical symptoms</i>				
PA %	42	36	27	33
PI %	45	50	54	67
RP	-0,21	-0.31	-0.32	-0.58
(CI)	(-0.44; 0.01)	(-0.53; -0.09)	(-0.55; -0.09)	(-0.75; -0.41)
RV	0.18	0.15	0.44	0.12
(CI)	(0.00; 0.37)	(0.00; 0.31)	(0.15; 0.72)	(0.00; 0.26)
<i>Physical function</i>				
PA %	23	32	30	17
PI %	45	50	40	80
RP	-0.16	-0.32	-0.14	-0.70
(CI)	(-0.43; 0.12)	(-0.56; -0.08)	(-0.39; 0.10)	(-0.85; -0.54)
RV	0.54	0.22	0.44	0.15
(CI)	(0.21; 0.87)	(0.03; 0.40)	(0.19; 0.69)	(0.00; 0.33)
<i>Psychological</i>				
PA %	68	36	43	43
PI %	10	14	54	37
RP	0.03	0.27	-0.40	-0.15
(CI)	(-0.12; 0.19)	(0.08; 0.48)	(-0.56; -0.24)	(-0.35; 0.05)
RV	0.12	0.10	0.03	0.15
(CI)	(0.00; 0.31)	(0.00; 0.21)	(0.00; 0.09)	(0.00; 0.31)
<i>Social</i>				
PA %	30	26	38	17
PI %	40	52	57	73
RP	-0.17	-0.28	-0.47	-0.48
(CI)	(-0.43; 0.08)	(-0.53; -0.02)	(-0.64; -0.30)	(-0.66; -0.30)
RV	0.41	0.29	0.08	0.11
(CI)	(0.12; 0.69)	(0.06; 0.54)	(0.00; 0.17)	(0.00; 0.22)
<i>Activity</i>				
PA %	37	37	65	30
PI %	50	41	32	63
RP	-0.40	-0.14	-0.30	-0.57
(CI)	(-0.64; -0.16)	(-0.41; 0.13)	(-0.46; -0.14)	(-0.77; -0.37)
RV	0.44	0.38	0.02	0.24
(CI)	(0.13; 0.74)	(0.08; 0.69)	(0.00; 0.06)	(0.01; 0.47)

The RP and RV values are indicated to be statistically significant on at least 5% level by the 95% confidence interval if this does not cover 0.

Overall, the orthopedic patients perceived a lower recovery than the general surgery patients (Tables 11 and 12), which is consistent with study IV. As Table 11 shows, all major surgical groups (orthopedic, general surgery, acute, elective) and all subgroups (fracture surgery, GBP and open abdominal surgery patients) except the joint replacement patients indicated a significant change in their global recovery systematic for the group towards lower levels of problems after one month. Within the major surgical groups, except the acute group, also significant changes depending on individual variation were indicated. When refining to subgroups, the changes mainly indicated group homogeneity in the global recovery assessments. At the dimensional level (Table 12), the orthopedic groups assessed their psychological function as impaired after one month compared to the first occasion (days 1-4). This result confirms the proportional indications at the item level within the psychological dimension in study IV (Table 7). The proportion of patients who reported feeling anxiety prior to surgery was highest for the GBP patients (72%) and lowest for the joint replacement patients (26%) (Table 10). However, the GBP patients were the most recovered in terms of both the psychological recovery dimension and the global recovery assessment. For the joint replacement group, the situation was reversed; they assessed their psychological function as significantly impaired after one month compared to the first occasion.

Synthesized results (I, II and the free-text in study III and IV)

We present the results of the qualitative studies (I, II) and the free-text results (III, IV) together in a synthesis, according to the phases of the perioperative procedure, to reach a better comprehension of the text.

Waiting preoperatively

The patients undergoing GBP surgery (I) remembered from prior to surgery a sense of inferiority related to their obesity and had themselves chosen to undergo surgery. They expressed feelings of shame related to their body and a fear for premature death and had noticed that their children felt ashamed of them due to their obesity. The patients

could no longer handle their obesity and felt that they were well motivated prior to surgery. By contrast, at the time of the experienced injury, the patients suffering fractures (II) stated that they experienced a new, unexpected situation that they not had chosen or planned. They described feelings of anxiety concerning the future, frustration and helplessness when realizing the seriousness of their injury but also a sense of relief that the damage was limited to their lower limb. While waiting for surgery in the ward, the patients undergoing GBP surgery (I) remembered a strange feeling related to being relatively healthy although they were hospitalized. The patients suffering fractures (II) described the waiting period as painful and strained. It was strenuous for them to remain still for many hours, and the pain was experienced as at its worst level prior to surgery (II).

The patients undergoing GBP stated that prior to surgery, they were well informed about the risks of having the surgery, the surgery procedure and lifestyle changes after surgery (I). The patients undergoing surgery after suffering a fracture remember that they felt a great need of information. They said that they needed orientation in their new, unexpected situation. Patients wanted to have their surgery as soon as possible (I, II) and wished to know when in time the surgery should be performed (II). Patients described fears concerning complications such as not awaking from the surgery and felt the need for information (I, II) about what should happen to their body (I, II), the surgery procedure (II, III) and the anesthesia procedure (I, II, III). That the information received prior to surgery complied with what then happened were mentioned as essential (I) and patients undergoing surgery after suffering a fracture expressed the need for concrete and timely information about the order of events and routines (II).

In the theatre-room and postoperatively in the PACU

Most of the patients (n=7) suffering a fracture (II) underwent their surgery while awake with regional anesthesia. They described how the orthopedic surgeon drilled and screwed and felt that their bodies shaking around the operation table. Patients remembered feelings of vulnerability and appreciated when the staff narrated what

they were doing and why (II). Being sedated in this high-tech environment, patients highlighted that they lacked knowledge (III). They expressed a need to hand themselves and decisions over to the staff rather than participation-needs. Accordingly, they needed to trust the staff's knowledge and ability (I, II, III). One patient described a sense of inferiority and a fear of failure (II) when the staff members joked and laughed with each other during the surgery.

After surgery, those who had been awake during the surgery (II) stated that they felt comfortable arriving at the PACU; often informed about the outcome of the surgery. Patients who received general anesthesia (I, II, III) described the sense of awakening in the PACU as being in a haze, with difficulties remembering details (I, II) and feeling completely dependent on staff (I, III). Because staff remained closed to the bed and patients could easily make contact (I, II, III), the patients felt a sense of control (II) and security (I). Patients remembered that they wanted to know the outcome of the surgery as soon as possible (I, III). Receiving personal information from the surgeon, including an explanation of the surgical procedures carried out, was highlighted as satisfying (I, II, III). Patients undergoing GBP surgery (I) were prior to surgery well informed about risks and some patients worried in connection with awakening for complications, for example, a leakage from the anastomosis. Some patients undergoing fracture surgery (II) wished to see the type of material embedded in their body as soon as possible. The patients undergoing GBP (I) were informed in advance about why their monitoring was necessary and that the stay in the PACU was limited in time. They described a sense of confidence because of that, and because of their expectation that their lives would be better following the surgery (I). By contrast, other patients (II) felt a strain related to laying and not knowing how long they should stay. Patients suggested that some distractions such as access to TV, newspapers and food facilitated their wait for discharge to the ward (III).

The high-technological environment in the PACU, which often included several other patients, was remembered as unknown and strange (I, II) and, at times, affected

recovery after surgery (I, III). The environment was described as messy (I, III) and industry-like (III), and some patients expressed that they felt like a number or one in the crowd wishing to have a single room (I). Some patients' described that they felt forgotten (I, III) and proposed that this was because other patients were more seriously ill and had to be prioritized (III). Patients stated that the closeness to the staff in the PACU was essential (I, II, III). That the staff had eye-contact when rushed past on their way to other patients, and showed that they noticed the patients was described as contributing to not feel forgotten (I). Moreover, knowing that the staff noticed them was expressed providing security (I, II, III). One patient suggested an alarm clock depicting a figure of staffs monitor without sound, to facilitate to make contact with the staff (III). Personal integrity was also commented on (I, II, III). Patients described feelings of exposition due to traveling to the bathroom in front of others. Thus, that staff in the PACU behaved naturally and seemed familiar with the situation was described as contributing to a permissive atmosphere (I). The patients emphasized the responsiveness in the open environment and had overheard unpleasant things (I, II, III). Despite this, some patients were not disturbed because they heard that other patients appeared sicker than they did (I, II). Patients described the importance of being treated/named as a person and not 'the fracture' and did not wish to hear conversations about their diagnoses (II). If the staff talked softly, this was giving a comfortable sense (I, III) and patients stated that staff that appeared to enjoy their work and involved the patients in collegial talks created an allowing atmosphere (II).

Patients (I) remembered that prior to surgery, they were well informed about the risk for complications and felt safe due to the monitoring in the PACU. Some patients (I) described that the apparatus alarmed when they moved in the bed and that they attempted to lie perfectly still to prevent triggering the alarm. The satisfaction with the staffs' medical competence was emphasized by the patients (III). They expressed that they felt safe because staff were 'special trained' (III) and experienced as professionals (II). Patients defined the term 'professional' as staff that had knowledge of specific issues and could explain and take responsibility for these issues (II). Receiving pain

relief intravenously when needed and not to be questioned were mentioned as particularly satisfying (III). Thus, some patients undergoing fracture surgery (II) felt overwhelming pains when the regional anaesthesia wore off, and some reported fears of getting too much Morphine because they remembered earlier unpleasant sensations related to Morphine. Information concerning, for example, the type of drug that was being administered (II) and why an apparatus made a sound (I) created a sense of safety.

Postoperatively in the ward and after discharge

Patients undergoing GBP surgery (I) expressed relief that the surgery was completed and remembered a feeling of expectation to start their new lives in connection with arrival to the ward. Some patients undergoing fracture surgery (II) described feelings of helplessness after discharge from PACU to the ward, for instance, when starting to mobilize but feeling unable to move. Moreover, some patients (II) remembered their longing to go home as a strong motivator. The silence in the two or three bedrooms in the ward was appreciated, while some patients regretted the closeness to the staff in the PACU (I). However, patients mentioned that it was important to improve the food that was served (III). The suggested improvements included more food options, less time between meals and the sale of lighter foods as room service.

Patients (I, II) described their mobility problems shortly after surgery at the hospital. The patients undergoing fracture surgery (II) were either restricted from weight bearing or only allowed mild weight bearing on their limb. They expressed that moving could be painful and difficult and described insecurities about using their new tools, such as crutches and walkers (II). The patients undergoing GBP surgery (I) expressed that prior to surgery, they were well informed about the importance of early mobilization after surgery to prevent complications. If this information did not correspond with what then happened they felt worried and wondered why. Concrete information about what previously happened and what should happen in the future was desirable (II, III). The patients undergoing fracture surgery (II) described that they

learned best when staff in the ward gradually explained the steps in mobilization while the patients were performing them. Some patients undergoing GBP surgery (I) expressed fears that the wound/anastomoses may dehisce when they sat up and coughed. Moreover, they (I) needed support to confirm how much they had drunk. Prior to discharge, the patients felt nervousness about how they would cope in their daily lives (I, II) and expressed both fear and expectations about how to manage their new situation (I).

Shortly after homecoming, patients undergoing GBP surgery (I) remembered that even with the information that they received prior to surgery, it was difficult to imagine the experience of recovery. Not being able to eat like before were described as frustrating and patients (I) expressed they were in an ongoing process of learning which foods they could tolerate. Patients undergoing fracture surgery (II) remembered that it was difficult to be mobile when their fractured limb pained and they expressed difficulties in assessing their normal versus abnormal recovery. Their relationships with people in the home environment were affected during recovery (I, II). Patients undergoing GBP surgery (I) described that they often received positive attention from people, often due to their appearance and often this attention felt good. Patients undergoing fracture surgery (II) expressed that they needed assistance from relatives, for example, to support movements, including managing homework and driving the children to activities. Some of the patients (I, II) stated that strains in their relationships arose during surgery. Patients undergoing GBP surgery (I) stated that when they revealed their surgery, comments were made about being cheaters compared to those who really struggled to lose weight in the 'normal' manner, i.e., decreasing the intake of food.

At the one- or two-month post-surgery interviews, patients who had undergone GBP surgery described a sense of being lightweight (I). Their ability to move was increased, and they could now go for walks. All patients (I) stated that the difference in their daily life was enormous related to their situation before surgery, and despite their lifestyle changes with some discomfort that surgery brought it was worth it, thus far.

Of the patients undergoing GBP surgery (IV), a number (n=17) wrote in free text that certain problems that they experienced prior to surgery improved after one month post-surgery and that this response option was missing from the questionnaire. By contrast, patients undergoing fracture surgery (II) described their recovery as an extended process and stated that contrary to their expectations, their limb felt unstable and weak for a long time after receiving the green light for full use.

Further analysis of data collection (III, IV, V) and data in study III

Considerations were raised about the impact of the assistance that I provided for 41% of patients (n=170) (III) and 40.6% of patients (n=180) (IV, V), who were physically unable to complete the questionnaires themselves. The fact that a large proportion of patients needed my assistance with the completion of the questionnaires due to their physical limitations may have impacted the results. The assistance included that I remained at the bedside and verbally stated the questions and the alternatives for the patients. Then, the patients provided their answers, which I registered. The patients' need of assistance for the completion of the questionnaires was subjectively assessed by the patients and me. However, the health status of these patients was measured through both self-assessments and anesthetist-assessments prior to surgery (ASA-classification), as shown in Table 13.

Table 13. Patterns and significances regarding age, physical health, psychological wellbeing and ASA-classification divided on those who completed the questionnaire themselves and those who received assistance by me. The health status and wellbeing items were graded in five point scales, from very good to very poor. These were merged into three point scales and illustrated in percentages. The analyses of significances (P) were performed by the U-Mann Whitney test on the original five point scales (0-5) except from the ASA (0-4). The internal loss was less than 6.1%.

Age and health status	Completed by themselves n=107 (59,4 %)	Assisted by first author n=73 (40,6 %)	P
Age; M(SD)	48.8 (15.3)	66.1 (15.7)	0.000
Physical health; MD(MR)IR	1 (80.6) 1	1 (91.2) 2	0.126
Very good or good; n (%)	71 (71.7)	43 (61.4)	
Nor or neither; n (%)	20 (20.2)	6 (8.6)	
Very poor or poor; n (%)	8 (8.1)	21 (30.0)	
Psychological wellbeing; MD(MR)IR	1 (80,1) 1.0	1 (90.7) 1.2	0.168
Very good or good; n (%)	87 (87.9)	53 (75.7)	
Nor or neither; n (%)	11 (11.1)	9 (12.9)	
Very poor or poor; n (%)	1 (1.0)	8 (11.4)	
ASA classification; MD(MR)IR	2 (80.8) 0.0	2 (100.9) 1	0.004
ASA I; n (%)	23 (21.9)	8 (11.1)	
ASA II; n (%)	62 (59.1)	37 (51.4)	
ASA III/IV; n (%)	20 (19.0)	27 (37.5)	

M= mean, SD= standard deviation, MD= median, MR= mean rank, IR= interquartile range. Lower values (MD, MR) indicate better physical health, wellbeing and ASA.

Summarizing Table 13, mean ranks and percentages indicated that the patients who were assisted during completion of the questionnaires assessed their physical health and psychological wellbeing as poorer than those who completed the questionnaires themselves, although these differences were not significant. The patients who received my assistance were significantly older and their health status (ASA), as assessed by the anesthetist prior to surgery, was significantly lower.

Regarding the majority of the QPP items (III), a high proportion of patients were satisfied, and some variation was not expected. We noted that there were significant differences in satisfaction regarding eight of the 33 QPP items between those who completed the questionnaire themselves and those who received my assistance.

However, most of these items evidenced significant differences concerning other factors as for example age, site of surgery and ASA-classification. These significant differences occurred within the following QPP dimensions: identity-oriented approach, social-cultural atmosphere and medical technical approach. We performed a PCA (principal component analysis) and found covariance between some groups, for example, acute/elective patients versus orthopedic/general surgery patients. Based on this analysis, we chose the factors with highest variance and performed multiple logistic regressions on the dimension levels (Table 14).

Table 14. Multiple logistic regression on dimensional level was used to estimate the impact of the factors beneath for the perceived reality (PR). P-values < 0.05 (P) and odds ratio (OR) was used to denote a significant impact. Each dimension in the QPP questionnaire was dichotomized according to satisfied = 0 (totally agree and agree in a large extent) and less satisfied = 1 (partly agree and not agree at all).

Factors	Perceptions of quality of care on dimensional level			
	Identity-oriented approach of the caregiver	Medical technical approach of the caregiver	Physical-technical conditions of the care organization	Socio-cultural atmosphere of the care organization
	PR	PR	PR	PR
	<i>P</i> (<i>OR</i>)	<i>P</i> (<i>OR</i>)	<i>P</i> (<i>OR</i>)	<i>P</i> (<i>OR</i>)
Men/women	0.636 (1.36)	0.997 (4008..)	0.984 (0.89)	0.505 (0.597)
Age	0.911 (0.10)	0.079 (0.91)	0.635 (1.01)	0.420 (1.02)
Acute/Elective surgery	0.268 (0.51)	0.632 (2.070)	0.027 (0.29)	0.014 (0.07)
ASA I-II/ ASA III-IV	0.761 (1.25)	0.414 (3.83)	0.286 (0.453)	0.698 (1.41)
Physical health; good/ less good	0.042 (3.85)	0.746 (1.68)	0.125 (2.60)	0.329 (2.61)
Completed themselves/ assisted by me	0.266 (2.29)	0.163 (13.12)	0.350 (1.82)	0.541 (0.57)

The dichotomous factors are coded 0/1. The first alternative in the table = 0.

As Table 14 shows, we found that overall; no effect persisted regarding those who completed the questionnaire themselves and those who received my assistance when the other variables mentioned above were taken into account. Within the dimension of identity-oriented approach, a significant impact emerged regarding physical health. Those who assessed their physical health as good were more likely to report satisfaction within the dimension of identity-oriented approach. Within the dimensions of physical-technical conditions and socio-cultural atmosphere, a significant impact emerged regarding whether the surgery was acute or elective. Those who underwent acute surgery procedures were more likely to report a lower satisfaction within the dimensions of physical-technical conditions and socio-cultural atmosphere, than the patients who had underwent elective procedures.

Analyze of group changes and additional individual changes for the entire group

Study V showed systematic changes in global recovery over one month for all major groups (orthopedic, general surgery, acute, elective), but also a common pattern of individual changes. We found that it would be of interest to explore if there are patterns of changes systematic for the group in global recovery for all surgical patients in the sample. Is there something in common to recover after a surgical procedure, regardless of type of surgery? Figure 1 shows patterns of changes for the entire group (n=167) of patients. There was a significant systematic change (RP = - 0.40, CI = - 0.49; -0.32) towards lower level of problems/difficulties for the entire group after one month. Moreover, the significant RC indicated on changes for subgroups within the entire group (RC = -0.22, CI = -0.37; -0.08) and the significant RV indicated an additional individual variation (RV = 0.10, CI = 0.05; 0.15).

Figure 1. A square contingency table illustrating the changes in global recovery between the two assessments for each patient in the entire group (paired assessments). Global recovery scale; A = fully recovered, B = almost fully recovered, C = partly recovered, D = not at all recovered

All participants (n=167)

Day 1- 4 after surgery

		Day 1- 4 after surgery					
		A	B	C	D		
Global level	After 1 month	D	0	0	9	36	45
	C	0	1	23	33	57	
	B	3	4	31	18	56	
	A	0	1	5	3	9	
Total			3	6	68	90	167

PA% = 38%

RP = - 0.40 CI = -0.49; -0.32

RC = -0.22 CI = -0.37; -0.08

RV = 0.10 CI = 0.05; 0.15

DISCUSSION

The overall aim of this thesis was to explore patients' experiences of undergoing surgery, including their perceptions of quality of care and recovery. The overall view of patients' experiences of undergoing surgery (I-V) can be understood as a trajectory, from vulnerability towards recovery, including a new, altered life. Patients' experiences and perceptions of the care given (I, II, III) are embedded within this trajectory.

Vulnerability during the perioperative procedure

As a thread in this thesis, through all studies (I-V), patients felt vulnerability in numerous ways, from prior to surgery, including the stay in the hospital, to after discharge. The term vulnerable originates from the term 'vulnus', which according to the national encyclopedia is translated as 'wound' and generally includes the human potential to experience psychological harm, spiritual threat and moral distress, in addition to living through a physical trauma (Tomme-Bonde 2012), which, in this thesis, is undergoing surgery. Patients described preoperative fears of future complications (I, II, III), such as not surviving the surgery (I, II). This is in line with Pritchard (2009b) who reviewed that the causes of vulnerability and anxiety prior to surgery are fear related to symptoms, the loss of control and a fear of death. Intraoperatively as well as postoperatively, feelings of vulnerability were expressed, such as handing over one's body and the decision-making to the staff (I, II, III) and feeling confused and completely dependent while awakening after surgery (I, II, III). This is consistent with previous research in the perioperative context (e.g., Humphreys 2005, Reynolds & Carnwell, 2009, Karlsson *et al.* 2012). Even after discharge from the hospital, patients perceived feelings of helplessness (II), dependence on others (II, IV) and impaired physical functions (I, II, IV, V). In summary, the experience of undergoing surgery may contain a general aspect of vulnerability that is tailored around living through the perioperative procedure, which includes a loss of control of autonomy and a fear of death. Research in another context shows that for patients cared for in a medical ward, vulnerability implies uncertainty in daily life because of

the disease and its demands on life (Berg *et al.* 2006). Lögstrup (1956) theorizes about concepts such as vulnerability, self-disclosure and trust. When someone is in a truly vulnerable situation, those with immediate power over another person's life have an elementary responsibility to take care of what has been omitted. In this context, this means being aware in a professional manner that the patient's life is in your hands in that moment and keeping in mind that tomorrow, you may be the omitted.

As this thesis shows, patients' undergoing GBP surgery (I) remembered feelings of inferiority related to their obesity before surgery, assessing a higher level of worry prior to surgery than those in the other surgical groups (V). The inferiority was multifaceted and dealt with shame regarding the bodily appearance and a fear of premature death (I). Studies (Brown *et al.* 2006, Puhl *et al.* 2008) examining people's experiences of being obese have concluded that this may be a stigma. It is reasonable to believe that patients who feel vulnerability in daily life before surgery are particularly exposed. This is in accordance to Conrad (1987) who states that the meaning of the term stigma can be understood as a person seeing her- or himself as vulnerable and inferior due to nonconformity. Studies (Adams *et al.* 2006, Whitlock *et al.* 2009) show that obesity is strongly associated with increased mortality. The health-related quality of life has been demonstrated (Sjöström *et al.* 2013) to be significantly improved ten years after obesity surgery, with increased physical and psychological function and decreased levels of depression. In contrast, patients suffering a fracture (II) remembered feelings of helplessness and anxiety for the future at the time of the injury, when realizing the seriousness of their unexpected injury. Harms (2004) and Tan *et al.* (2008) found that suffering an acute trauma may cause feelings of vulnerability, including anxiety and loss of control related to the sudden occurrence. Harms (2004) described an adaption to a new role as a person with a disability and restrictions in a culture valuing physical perfection and independence. Clearly and naturally, the vulnerability described that occur prior to surgery (I, II) partly have different sources; suffering a mortal condition such as obesity, but feeling hopeful for

a surgical cure (I), and suffering an acute injury resulting in surgery to recover the original condition (II) entail obviously different baselines prior to surgery.

The proportions of patients' assessed anxiety feelings prior to surgery were highest for the GBP patients and lowest for the joint replacement patients. However, the GBP patients were shown to be the most recovered regarding their psychological function, including the assessment of anxiety. For the joint replacement group, the situation was reversed, and they assessed their psychological function as significantly impaired after one month (V). This is in contrast with other studies (Faller *et al.* 2003, Kagan & Bartal 2008, Pritchard 2009a) indicating that preoperative anxiety affects postoperative recovery in a negative way. Hence, preoperative anxiety may be seen as a negative expectation regarding future events. Patients remembered that prior to their GBP, they felt anxiety about never waking after surgery and they had themselves chosen to undergo surgery (I). Harms *et al.* (2004) found that the relief of surviving may have influenced the recovery experience, feeling lucky to still be alive. Studies (Eisler *et al.* 2002, McGregor *et al.* 2013) indicate that orthopedics patients' dissatisfaction during the recovery period tends to be linked to their unrealistic expectations of the outcome of surgery. The greater the attachment to a good outcome, the larger was the discrepancy between expectation and achievement. According to Tutton *et al.* (2012), patients' who undergo surgery must be supported towards a realistic hopefulness, and it is essential to avoiding instilling false hope. Edvardsson (2005) proposes that we may chart the expectations of patients and/or relatives initially in the care episode. To listen on the patient's story of her/his experiences prior to surgery as well as the expectations for the future would be the basis for this support, which is person-centered care.

Experiences in the high-tech perioperative environment

The quality of care during the perioperative procedure was assessed as quite good. Hence, there were areas for improvement, such as the information given and the physical care environment in the PACU (I, II III). This is consistent with previous

research (e.g., Leinonen *et al.* 2001, Smykowski 2008). Smedley (2012) describes the specific nature of nursing in the PACU. Planning care must be swift and implemented quickly. Several patients at a time present multiple risk-factors based on their complex preoperative conditions and individual response to the anesthetic and surgical intervention. The nurse must have a good overview and prioritize on the basis of what will receive immediate attention. In this thesis, the open PACU environment was described as unknown (I, II), messy (I, III) and industry-like (III) and at times affected patient recovery after surgery (I, III). The physical care environment is an important part of the patients' view of the quality of care (Wilde *et al.* 2001, Abrahamsen Grøndal 2012), and patients' perceptions of their recovery after surgery are directly related to their satisfaction with care (Myles *et al.* 2000). Hence, this thesis further provides rich descriptions of supporting staff actions (I, II, III), and the vast majority of the patients assessed satisfaction with the encouragement and the medical treatment from staff in the PACU (III). That staff behaved naturally and seemed familiar with the situation was described as contributing to a permissive atmosphere (I). According to Edvardsson (2005), the phenomenon 'atmosphere in care settings' may be understood as two interacting and interwoven dimensions; the physical environment and peoples being and doing in this environment. As a patient in this thesis said, 'Staff who appear to enjoy their work and involve the patients in collegial talks creates an allowing and comfortable atmosphere' (II).

Patients in the present thesis emphasized the responsiveness in the open environment (I, II, III), and some had seen and/or overheard unpleasant things. Allen and Bagdwell (1996) state that the open PACU settings of today were developed mainly during World War II as a necessity, due to having to provide care for many severely injured patients simultaneously. However, as early as 1801, Allen and Bagdwell (1996) describe a PACU in England consisting of two-bed rooms, one bed for the nurse and one bed for the surgical patient. The nurse remained with the patient night and day until the patient either recovered or died. For obvious reasons, this is not implementable in today's care. Barlas *et al.* (2001) compared privacy between two

types of areas; those with curtains and those with solid walls. Not surprisingly, patients preferred to be cared for in areas with solid walls. However, this thesis shows that when patients were aware that the staff noticed them, they felt secure (I, II, III). Persson and Mättä (2012) found that care in a multiple-bed room entails not only disadvantages; it provides closeness and overview for many patients simultaneously, which also saves time for the staff. Thus, studies (e.g., Johansson *et al.* 2012, Engström *et al.* 2013) show that patients who shared a room with others wanted privacy, particularly if the patient next to them was severe ill. According to Barlas *et al.* (2001), privacy is one of many considerations in acute care settings. The open and ‘industry-like’ PACU-environment may be necessary to safely overview and provide closeness for several patients at once. Thus, it is essential to minimize the transparency between patients as far as possible, not just with curtains between the beds (Engström *et al.* 2013). Smykowski (2008) found that patients’ satisfaction with care in an open 20-bed PACU were improved dramatically after creating pods of four patient bays, with hard, floor-to-ceiling walls separating the pods from each other but opening towards the staff workstation.

The information given to patients was assessed as an area for improvement, such as the information given prior to surgery about the stay in the PACU (III). Information quality is an important predictor of patient satisfaction (Veenstra & Hofoss 2003, McCabe 2004). Patients undergoing GBP surgery (I) were well informed in advance about the risks after surgery and the expected time frame for monitoring in the PACU. They remembered a sense of confidence because they knew how long they should stay, if no complications emerged. Some patients (II) felt a strain related to not knowing how long they should stay. Muntlin *et al.* (2006) found that patients who were informed in advance about the waiting time were generally more satisfied. Patients (I) expressed that prior to surgery, they were well informed about the importance of early mobilization after surgery to prevent complications. If this information did not correspond with what then happened they felt worried and wondered why. Edvardsson *et al.* (2005b) state that when there is agreement between

the patients' personal expectations and their experiences, feelings of safety and security are encouraged. Often, patients feel they obtain too diffuse or too general information about what will happen (Veenstra & Hofoss 2003). However, as this thesis shows, receiving too detailed information about, for example, risks prior to surgery could cause additional anxiety for some patients (I, III). According to Wanzer *et al.* (2004), satisfaction with care in acute care hospital settings are an outcome of person-centered communication, such as listening, sensitivity and immediacy. Although information needs are personal, they can be divided into the need for basic information regarding the general procedure and the need for information specific to each surgical procedure (Bailey 2010).

Towards recovery, including a new, altered life

The orthopedic group seemed to mutually be more comparable than the general surgery group when examining subgroups within each of the two endpoints (IV). Within both occasions, significant differences were indicated in the levels of recovery between different surgical groups. This is consistent with other studies (e.g., Brattwall *et al.* 2011, Berg *et al.* 2012) exploring recovery, which revealed that the recovery course differed between the surgical procedures studied. Obviously, quality improvement in patient support must be tailored to the specific surgical procedure (Brattwall *et al.* 2011). Thus, as far as we know, few studies have focused on the assessment of homogeneity and individual variation within different surgery groups. In contrast with study IV, study V assessed changes within each group over time. According to Allvin *et al.* (2012) knowledge of recovery profiles can be used in preoperative information to facilitate the overall recovery. Moreover, our study V examined whether homogeneity or individual variation dominated within each group. All major surgical groups (orthopedic, general surgery, acute, elective) and all subgroups (fracture surgery, GBP and open abdominal surgery) except the joint replacement patients indicated a significant change in their global recovery systematic for the group towards lower levels of problems after one month, although additional individual variation was common in the major groups (V). According to Svensson

(2005), large individual variation in a group indicates a need for individual care, and a standardized treatment method would not be an optimal alternative. The additional exploration (result-section p. 57) of the entire surgery group (n=167) indicated significant changes in global recovery systematically over a month for the entire group (RP) as well as significant changes regarding subgroups within the entire group (RC) and an individual variation (RV). In summary, recovery support not only may contain a general structured part that is commonly for all patients who undergo surgery but also should be surgery specific and person centered. According to Tutton *et al.* (2012) it is often impossible to accurately predict the recovery after a surgical procedure. Sometimes a ‘wait and see’ approach is required, which is centered on learning to live ‘day by day’ while focusing on achieving personal recovery goals in the near future. Therefore, the care must always primary be individualized, and standardized methods, such as structured discharge planning protocols, should only be used as a complement.

This thesis shows that overall, orthopedic patients perceived a lower recovery than general surgery patients (IV, V). This is similar to other studies (e.g., Allvin *et al.* 2011, Berg *et al.* 2012) exploring a short-term perspective of postoperative recovery. The orthopedic patients had problems with mobility (II, IV) and following that, dependence on others (II), which is in line with Brattwall *et al.* (2011). Additionally, patients (II) after fracture surgery described difficulties assessing in themselves what was a normal versus an abnormal recovery. According to McMurray *et al.* (2007), today’s health care climate consists of a rapid transition through the health care system, and patients discharge to their homes ‘quicker and sicker’ than before. This thesis shows that the orthopedic groups assessed their psychological function as impaired after one month compared to the first occasion in the hospital (IV, V), which may indicate a lack of support in their homes. In another context, illuminating the meaning of caring relationships for patients with severe, acute and long-term illnesses; patients vulnerability became obvious once they were discharged from the hospital, depending on no efficient resources to rely on at home (Berg *et al.* 2006) A recent large prospective trial has shown that aged orthopedic patients (over 70 years) have

significant and clinically important long-term (12 months) improvements in mobility, the activities of daily living, and the quality of life when receiving comprehensive geriatric assessment and care, compared with the usual care in an orthopedic trauma ward (Prestmo *et al.* 2015). Prior to discharge, the patients who had undergone fracture surgery (II) felt nervousness about how they would cope in their daily lives. Prestmo *et al.* (2015) found that better in-hospital programs for discharge planning and mobilization significantly increased the opportunity for older fractured patients to discharge directly home. Studies (e.g., Lin *et al.* 2009, Ben-Morderchai *et al.* 2010) have shown that structured discharge planning prior to discharge increases orthopedics patients' satisfaction after discharge from hospital. The structured patient education should be written and contain a general component about the specific surgical procedure, such as handling of the cast in the shower and detailed information about signs that prompts contact with medical care (Ben-Morderchai *et al.* 2010). Additionally, to increase the accessibility to health care (Eriksson *et al.* 2009, Wälivaara *et al.* 2013) and strengthen the individual manageability after discharge, an e-health solution may be constructed. Eriksson *et al.* (2009) found that using video communication between the patients' home and the hospital was effective for orthopedic patients. The intervention group improved significantly more in terms of pain, mobility and health-related quality of life than the control group.

In this thesis, a trajectory towards recovery in terms of returning to preoperative levels of independence/dependence and normality in daily life (c.f. Allvin *et al.* 2007) could be understood (II, IV, V), such as patients undergoing surgery after an acute injury having to regain their control and autonomy (II). According to Harms *et al.* (2004), 74% of patients understood their recovery following road trauma as a return to a pre-accident state of being, psychologically and physically. However, a view of a new life after surgery was also discernible for patients who had undergone a GBP (I), emphasizing that they (IV) lacked an additional response alternative in the PRP questionnaire, 'improved compared to prior to surgery.' This is in line with Royse *et al.* (2010) proposing that postoperative recovery also include 'better related to before

surgery.’ A new or altered life is also discernible for other surgical groups, while it is not always possible to recover to preoperative levels (cf. Harms *et al.* 2004, Persson *et al.* 2004, Pattison *et al.* 2015). After stoma surgery, patients have reported being in a new situation with difficulties in coming to terms with their changed body-image related to the stoma and needing support to adapt to their new life (Persson *et al.* 2004). Pattison *et al.* (2015) found that recovery from critical illness was shaped by ongoing illness and treatment of cancer, and the need for adjustment to a new normality of living with and beyond cancer. Having a goal of returning to ‘normality’ related to previous experiences of a healthier life may not help certain patients to achieve balance and well-being in daily life (c.f. Jeon *et al.* 2010); likewise, the GBP patients are in a reversed situation progressing towards a new lighter life (I), and their goal is obviously to achieve something else than preoperative levels. Deegan (1988) defines recovery in a psychiatric context as an improvement beyond or unrelated to the remission of symptoms based on the motivation to achieve personal goals and feeling hope about the future. Patients undergoing a GBP (I) expressed motivation to change their lives, and having surgery may be a realistic way to realize their hope for a new healthier life. According to Antonovsky (1987), the sense of meaningfulness in each person’s life is a strong motivational component and determines whether it is worth making commitments and investments for the future.

METHOD DISCUSSION

Research results must be as trustworthy as possible, and every study should be evaluated in relation to the procedures used to generate the results (Graneheim & Lundman 2004). There are essential similarities between qualitative and quantitative research methods (Malterud 2001), roughly described, validity in a study reflects whether the research measures what it is intended to measure, while reliability reflects the reproducibility of a measurement (Dawson & Trapp 2004). Downe-Wamboldt (1992) uses traditional concepts in quantitative research; validity and reliability when describing trustworthiness in a qualitative content analysis. However, regarding qualitative and quantitative research methods, some procedures are dissimilar because of their different natures; the assumptions of the data and the questions to be answered (Malterud 2001). Following, the design and concepts used in this thesis first will be discussed, and the weaknesses in the qualitative (I, II) and quantitative (III, IV, V) studies will be discussed separately.

Considerations of the thesis design

This thesis was conducted with a mixed methods design (Creswell & Plano Clark 2011) because the overall aim was to explore patients' experiences of undergoing surgery, including their perceptions of quality of care and recovery, in its entirety and complexity. According to Plano Clark (2010), there are several reasons for using mixed methods, such as to view an overall aim from multiple perspectives, to enhance and enrich the meaning of a singular perspective and to contextualize a setting, for example a hospital. However, massive criticism has been directed against the mixed method concept as a methodology and worldview as well as a method. For example, Holmes (2006) questions whether paradigms/worldviews really can be mixed, and Lincoln and Canella (2004) argue that the mixed method downgrades interpretive approaches and methods and favor post-positivistic methods with quantitative focus. Thus, my intention was not to gain a deep interpretive understanding of one small delimited phenomenon but to provide a broad and multifaceted understanding and knowledge of patients' experiences of undergoing surgery, including their perceptions

of quality of care and recovery. Subsequently, the qualitative studies (I, II) described the issues that occurred and how these were experienced, and the studies with quantitative methods (III, IV, V) described how frequent the issues appeared and/or their intensity. The analyses in study III and IV were quantitative, whereas the data were of qualitative forms, mainly relating to the same areas, quality of the care given and recovery, as in the qualitative studies (I, II). According to Plano Clark (2010), examining processes or experiences along with outcomes may provide a more complete understanding. Hence, these studies together (I-V) might provide an enhanced and enriched knowledge of patients' experiences of undergoing surgery that overall can be understood as a trajectory from vulnerability towards recovery, including a new, altered life. Thus, into which of the paradigms this thesis belongs is up for discussion. According to Burke Johnson *et al.* (2007), paradigm issues are a major concern in mixed method research, and the debate continues over what constitutes an appropriate paradigm for this research.

The concepts of quality of care and postoperative recovery

The concepts used in this thesis were quality of care and postoperative recovery. The questionnaires used (QPP and PRP) are standardized and validated instruments, which is a strength and the PRP questionnaire (IV, V) is specifically designed to assess postoperative recovery for surgical patients. A weakness in this perioperative context may be that the original QPP model (Wilde *et al.* 1993) was generated from interviews with patients at a medical infection clinic. According to Wilde-Larsson *et al.* (2001), the QPP model probably would have had a different appearance if patients from other care settings had been included, based on what those patients perceived as important in their care. This may be one reason that patients' undergoing surgery (III) rated having opportunities to participate in their care to be important to a rather low extent. However, a mitigating factor was that the patients' were able to explain why and what they perceived to be important in its place in free-text (III).

The concept of quality of care has also been criticized in general. Patient satisfaction scores tend to present a too-optimistic picture (Jenkinson *et al.* 2002, Papanikolaou *et al.* 2008, Riiskjaer *et al.* 2011), and person-related variables tend to be the strongest predictors of patient-satisfaction (Abrahamsen Grøndal 2012). Moreover, external care conditions, for example the staff's work situation, are strongly correlated with the concept of quality of care (Aiken *et al.* 2002, Cho *et al.* 2009). Abrahamsen Grøndal (2012) found that the quality of care can be assessed as better than it really should be because of the staff's ability to over-stretch themselves and compensate for deficiencies in the resource structure of the care organization. In a narrow sense, the QPP questionnaire can only be considered to be valid in a certain care setting at a given time (Wilde-Larsson *et al.* 2001) and is not generalizable in a traditional quantitative sense. However, this thesis has a mixed-methods design, and my primary goal was not to reach external validity in terms to generalize the results to population. The context, the personal characteristics and the surgical procedures are specified, which in a qualitative way enables the reader to transfer the results to similar settings. According to Graneheim and Lundman (2004), it is the reader's decision whether the results are transferrable to other contexts.

Methods in the studies

One of my supervisors said that the studies (I-V) in this thesis should be seen as five informants contributing to the overall aim. Following, the weaknesses in the methods used in these studies (I-V) certainly affect the final result in the thesis and therefore must be clarified.

Study I and II

In total, 30 patients in each study (I, II) were contacted and asked to participate. Subsequently, there was a loss of 20 persons from respective study. This is a weakness that may have affected the results (I, II), as the non-responders may have different experiences of undergoing surgery. According to Graneheim and Lundman (2004), choosing participants with various experiences increases the credibility by enhancing

the possibility of shedding light on the research question from a multiplicity of aspects. Crow *et al.* (2002) state that responders in general differ from non-responders by being more likely to have strong feelings of a positive or a negative nature. Moreover, responders are more likely to be well educated. Unfortunately, no data were collected about the persons who did not participate (I, II). According to Crow *et al.* (2002), personal methods, such as telephone and face-to-face contact, generate higher responses than impersonal methods, such as mail or letters, where the responsibility to be active and send it back ends up with the participant. A more successful sample method would probably have been that the nurses or I delivered the letter, informed the patients and asked for participation. After receiving informed consent, we would have collected the letters immediately, including phone numbers. Only ten (I) and nine (II) persons finally participated, which is quite few. However, their descriptions were rich and this may have been due to these persons really wanting to participate. Morse (2000) describes that the richer data, the fewer participants are needed. The quality of the interview data depends on whether the participants have much experience with the topic, are communicative and are willing to share their experiences with the researcher. In conclusion, in this qualitative context, it may also be an advantage that only participants who actively sent the letter back participated.

Our choice to retain the chronological time frame, i.e., adjustable to the perioperative procedure in the analysis and results (I, II), was associated with certain considerations. Inductive categories based on feelings were difficult to complete because feelings such as vulnerability and striving for control occurred pre-, intra- and postoperatively, but to a different degree. Therefore, we performed two of the categories in study I and all categories in study II in a neutral way, indicating time or place, such as ‘waiting for surgery’. An alternative way had been to perform categories or themes expressing feelings and then repeat the procedure for each category. Downe Wamboldt (1992) provides freedom regarding the performance of categories. She states that how narrow or broad the categories should be or whether the categories should be mutually exclusive or not depends on the purpose of the investigator and what is most logical in

the context of the question under exploration. They exemplify a study of Flaskerud and Rush (1990) that investigated traditional health beliefs and practices of black Americans, which resulted in two broad category names, 'natural' and 'supernatural'.

Study III, IV and V

The data (III, IV, V) were collected over the time period of days 1-4 after surgery, which is a weakness, and this variance may provide inconsistent perspectives of the patients. In study III, patients assessed a 'lived through procedure' more external to themselves, and days 1-4 must here be regarded as a relatively short and coherent time. According to Crow *et al.* (2002), the most commonly used methods to deliver surveys are telephone and mail. Using such methods, the variance in time is probably much larger. In study IV and V, this variance is a greater weakness because it can be supposed that items such as pain and nausea vary from day 1 to day 4 for the same surgical procedure. However, the specification of one day had resulted in an unreasonably long time for the data collection when I administered the questionnaire. The benefits of my administering of the questionnaire can be seen as compensatory when the external loss is negligible and the sample is consecutively selected. The staff most likely did not have the time to perform questionnaire administration in this way.

Of the sample, 41.0% (III) and 40.6% (IV, V) of the participants were unable to complete the questionnaire themselves during the first occasion in the ward. These patients required assistance from me, whose presence may have affected the results. Further analyses of the data (p. 54) showed that those who needed assistance were significantly older and had a significantly lower ASA classification. I maintained a neutral posture and focused on reading the questions and alternatives as impersonally as possible. The performance of a logistic regression on a dimensional level (p. 55) showed that my assistance had an overall negligible effect. If the groups assisted by me had been excluded, the sample population would have been biased because only the 'healthiest' patients would have been able to participate. Crow *et al.* (2002) reviewed that when using structured questionnaires, there are major problems with

obtaining usable responses from elderly and/or severely ill persons, i.e., those who really require care and need to make their voices heard.

Assuming that the orthopedic and general surgery groups (IV) are comparable may be a weakness and raises questions about the classification of groups based on a rough common denominator. Hence, this classification is based at affinity to clinic and is commonly used nationally and worldwide. The personal characteristics and surgical sites are specified, which provides an opportunity for the reader to generalize the findings to similar populations. Moreover, to assume that the subgroups (IV) are directly comparable is challenging and may be likened to comparing apples to oranges. For an appropriate comparison, a similar effectiveness in the cure of the patient's underlying condition must be expected (Kluivers *et al.* 2008). Hence, all subgroups were inpatients and had undergone major abdominal or orthopedic surgery, and the results were by no means obvious. The method chosen in study IV for analyzing differences in ordinal data (Mann-Whitney U-tests) at two endpoints is established (Dawson & Trapp 2004). Hence, there are some considerations. According to Svensson (2005), ordinal data have no other arithmetic properties than the ordered structure, and therefore, outcome changes should not be defined by calculating differences. In contrast to study IV, study V assessed patterns of changes within each group over time. Compared to classical methods for analyzing ordinal data over time, the statistical method used in study IV takes into account the non-metric properties of ordinal data and furthermore makes it possible to separate the pattern of change into two components, one of which concerns the pattern of group changes and the other the individual changes not explained by the group change (Svensson *et al.* 2005). In conclusion, recovery has been assessed in different ways; differences in recovery between groups at two different endpoints (IV) and recovery over time for each patient and for the group using the method developed by Svensson (IV).

CONCLUSIONS

The overall view of the patients' experiences of undergoing surgery can be understood as a trajectory from vulnerability towards recovery, including a new altered life. As a thread in this thesis, through all studies, patients felt vulnerability in numerous ways. Suffering a mortal condition such as obesity, but feeling hope for a surgical cure and suffering an acute injury resulting in surgery to recover the original condition entails baselines that are obviously not the same prior to surgery. A progression towards recovery in regards to regaining to preoperative levels of dependence/independence could be concluded. Thus, for patients undergoing GBP, a view of a new life after surgery was also discernible. A new or altered life can also be understood for other surgical groups, when there is not always the possibility to recover to preoperative levels. There were areas for quality improvement such as the information and the physical care environment in the PACU. While undergoing surgery, satisfaction with the provision of information not necessarily include receiving as much and the most detailed information as possible; nevertheless, the need for information to a great extent is personal. In the PACU, it is essential to minimize the transparency between patients as much as possible, but maintain closeness to the staff. The recovery period for orthopedic patients is a strain, and the support must be improved. In conclusion, perioperative support may contain a standardized part that is related to the general procedure commonly for all patients, such as information about the different specific care environments, for example, the stay in the post-anesthesia care unit. Moreover, the support should be person centered, accounting the patients' expectations about the future but also tailored to the specific surgical procedure with its limitations and possibilities. Then, patients would be strengthened towards recovery, including a new, altered life.

CLINICAL IMPLICATIONS

A general intervention to make the perioperative environments more familiar prior to surgery might be offering a film sequence showing the theatre-room and PACU environments as well as the categories of staff involved to patients who wish. Moreover, a person-centered support with respect to earlier experiences and future expectations should be provided. We may chart the expectations of patients and/or relatives initially in the care episode to provide support towards a realistic hopefulness. The provision of structured discharge education may be used as a complement to facilitate recovery. This patient education should be written and contain a component regarding the specific surgical procedure as well as personalized instructions via follow-up calls or video communication after discharge. Some form of top-five priority profile may be used in clinical postoperative care, for example, with the objective of specifying the most important needs to directly treat them before discharge from the hospital. This assessment would constitute a broad base for research in addition to increasing clinical knowledge.

FURTHER RESEARCH

- The specific environment and atmosphere in the PACU warrants further attention.
- Further research to clarify the impact of personal and external factors on recovery after specific types of surgical procedures are required.
- Further research exploring which factors that predict recovery in the short and the long term perspective are needed.
- Research on implementing programs for discharge planning for orthopedic patients are required.

SUMMARY IN SWEDISH – SVENSK SAMMANFATTNING

Patienters upplevelser av att genomgå en operation:

Från sårbarhet mot återhämtning, inkluderat ett nytt förändrat liv?

Introduktion

Det övergripande syftet i denna avhandling var att utforska patienters upplevelser av att genomgå en operation, samt deras uppfattning om vårdkvalitet och återhämtning. När hemmiljön ersätts av en främmande sjukhusmiljö och personen får en ny, ofta ofrivillig roll som patient kan känslor av att förlora kontrollen över sin situation uppstå. Om en person blir sjuk eller skadar sig akut och måste opereras förändras livet temporärt eller långvarigt och detta kan vara en stor livshändelse. Under den perioperativa proceduren är patienten vanligtvis sårbar och beroende av personal. Att genomgå en operation har liknats vid ett förlopp, från omedvetenhet och instabilitet till medvetenhet och stabilitet. För att öka kunskapen om att bli sjuk eller skadad och behöva opereras, bör proceduren i sin helhet och komplexitet studeras, från att patienten får veta att denna ska opereras, inkluderat vårdkvaliteten under vistelsen på sjukhuset samt återhämtningen.

Rational för avhandlingen

Tidigare forskning indikerar att upplevelser ur ett patientperspektiv är välstuderat inom den perioperativa kontexten. Forskningen har dock ofta fokuserat på distinkta aspekter, exempelvis upplevelser av smärta eller oro eller har speglat sjuksköterskans perspektiv. Denna forskning är värdefull och vi vet att patienter som genomgår en operation ofta känner sig utlämnade till personalen och befinner sig i en sårbar situation. Vi vet också att trots utveckling av kunskap och ny teknik, upplever patienter som genomgår en operation fortfarande komplexa problem och dessa behöver studeras vidare. En patient som genomgår en operation upplever inte bara vissa aspekter, utan genomlever hela proceduren. För att uppnå en bredare kunskap och förståelse är det viktigt att patienter som genomgår olika typer av operationer får möjlighet att beskriva sina upplevelser och uppfattningar från olika perspektiv. Det är

brist på forskning som beskriver patienters upplevelser av att genomgå en operation från start, samt deras uppfattningar om vårdkvaliteten och återhämningsperioden under proceduren. Därför syftar denna avhandling till att utforska patienters upplevelser av att genomgå en operation, samt deras uppfattning om vårdkvalitet och återhämtning.

Delsyften

Från det övergripande syftet formulerades ett specifikt syfte för respektive delstudie:

- att beskriva personers upplevelser av att genomgå en gastric bypass operation, från beslut innan operationen till två månader efter operationen, vården på sjukhus inkluderad (I).
- att beskriva personers upplevelse av att drabbas av en fraktur i nedre extremiteter och genomgå en operation, från tidpunkten för skadan, vården på sjukhus och återhämtning efter hemkomst inkluderad (II).
- att beskriva patienters uppfattningar av vårdkvalitet under den perioperativa proceduren och identifiera områden för kvalitetsförbättringar (III).
- att utforska ortopediska och kirurgiska patienters uppfattningar av postoperativ återhämtning under en månad efter operationen (IV).
- att utforska mönster av förändring i patienters postoperativa återhämtning under en månad inom olika kirurgiska grupper (V).

Deltagare och metod

Denna avhandling har en mixed methods design och studier med kvalitativa (I, II) och kvantitativa (III, IV, V) metoder har planerats och utförts. Data samlades in via intervjuer med tio deltagare som hade genomgått en gastric bypass (GBP) operation (I) och nio deltagare som genomgått en operation efter att ha drabbats av en fraktur på nedre extremiteter (II). Dessa data (I, II) analyserades sedan via kvalitativ innehållsanalys. Data samlades också in via två standardiserade frågeformulär: Kvalitet ur patientens perspektiv (QPP) (III) och Postoperativ återhämningsprofil (PRP) (IV, V). Totalt 170 patienter som genomgått ortopediska och kirurgiska

operationer deltog i studie III och 180 dito patienter deltog i studie IV och V. Av dessa var 170 patienter deltagare i samtliga studier (III, IV, V) och följaktligen lades 10 extra patienter till i studie IV och V. Data analyserades via beskrivande statistik (III, IV, V), manifest innehållsanalys av fritext-svar (III) och analytisk statistik (IV, V).

Resultat

Delstudie I: Från att nå vägs ände till ett nytt lättare liv. Patienters upplevelse av att genomgå en GBP.

Under analysen i denna studie framkom ett tema; från att nå vägs ände till ett nytt lättare liv. Under perioden före GBP operationen beskrev patienterna en känsla av utsatthet relaterat till sin övervikt och de valde själva att genomgå operationen. De beskrev en rädsla för att dö i förtid och att de upplevt att deras barn skämdes för dem. Patienterna kände att de inte kunde hantera sin övervikt längre och beskrev att de var välinformerade och motiverade inför operationen. Omedelbart efter operationen på den postoperativa enheten, mindes patienter att de kände sig både sårbara och säkra i den okända högteknologiska miljön. Sårbarhet och en känsla att vara totalt beroende av personal uttrycktes speciellt i samband med uppvaknandet. Patienterna behövde omedelbar närhet till personal, orientering i tid och rum samt att få veta hur operationen gått för att känna sig trygga. Lättnad att operationen var över och förväntan inför att starta få sitt nya liv uttrycktes. Patienterna uppskattade att komma till vårdavdelningen och kunna röra sig fritt men några patienter sa att de saknade närheten till personalen på den postoperativa enheten. Patienterna beskrev att de kände både rädsla och förväntning inför hemkomst. Trots att de var välinformerade före operationen var det svårt att föreställa sig hur det skulle bli. Alla patienter konstaterade dock att skillnaden i dagligt liv var enorm och de kände en helt ny motivation. Nu kunde de röra sig lättare och gå promenader och mycket som tidigare känts omöjligt att utföra var nu möjligt. Patienterna relaterade till livet innan operationen och kände det var värt det så här långt...

Delstudie II: Patienters upplevelse av att drabbas av en fraktur på nedre extremiteter och genomgå en operation.

Under analysen i denna studie framkom ett tema; från att inse allvaret i skadan till att återfå autonomi. Patienter som drabbats av en fraktur beskrev att de vid tidpunkten för skadan upplevde en ny oväntad situation som de inte räknat med. De kände frustration och hjälplöshet när de insåg allvaret i skadan men också lättnad över att det inte blivit svårare skador. Väntan inför operationen var ansträngande och smärtsam och patienterna mindes att de kände behov av att få veta vad som skulle hända i framtiden. Majoriteten av patienterna var vakna under operationen. De beskrev att de kände sig sårbara under operationen och behövde lämna sig i personalens händer. Patienterna upplevde mycket via hörseln och uppskattade när personalen berättade vad som hände och varför. Efter operationen på den postoperativa enheten, beskrev patienterna ett behov av att ha kontroll och att känna sig säkra i sin nya situation. Patienter som varit vakna under operationen sa att det kändes bra att anlända till den postoperativa enheten, vid fullt medvetande och ofta redan informerade om hur operationen gått. Att uppleva att personalen hade kontroll och var erfarna bidrog till en känsla av trygghet. Efter ankomst till vårdavdelningen beskrev några patienter känslor av hjälplöshet relaterat till exempelvis svårigheter att röra sig och mobilisering. Patienterna önskade konkret information om vad som skulle hända och beskrev att de lärde sig bäst när personalen stegvis förklarade hur mobiliseringen skulle gå till medan patienterna utförde momentet. Återhämtningen efter hemkomst var en utdragen process. Patienterna var beroende av hjälp från omgivningen under lång tid och hade svårigheter att bedöma vad som var normalt eller inte.

Delstudie III: Patienters uppfattningar om vårdkvalitet under den perioperativa proceduren.

Denna studie visar att patienter som genomgått en operation överlag bedömde vårdkvaliteten som tillfredställande, med hög grad av nöjdhet inom de flesta områden. En stor majoritet av patienterna skattade att de var nöjda med bemötandet (empati respekt och engagemang) av läkare och sjuksköterskor under den perioperativa

proceduren. Områden som identifierades ha en viss förbättringspotential var information och deltagande. En majoritet av patienterna skattade att de fått tillfredställande information om anestesi och den kirurgiska proceduren. Dock var endast cirka två tredjedelar respektive hälften av patienterna nöjda med informationen före operationen om vad som skulle ske på operationssalen respektive information om vistelsen på den postoperativa enheten. Andelen patienter som skattade att det var viktigt att få bra möjlighet att delta i beslut om sin vård i operationssalen och på den postoperativa enheten var relativt låg, liksom även andelen patienter som var nöjda med detta. Patienterna kände sig sårbara i den högteknologiska miljön och sa att de saknade kunskap. Snarare än behov av deltagande, uttrycktes ett behov av att få lämna över beslut till personalen och att kunna lita på personalens kunskap.

Delstudie IV: Patienters uppfattning av sin postoperativa återhämtning under en månad.

Patienter som genomgått ortopedisk kirurgi var överlag mindre återhämtade än patienter som genomgått generell kirurgi. Ungefär två tredjedelar av de ortopediska patienterna respektive hälften av de kirurgiska patienterna skattade att de upplevt svår eller medelsvår smärta vid det första mättillfället (dag 1-4) på vårdavdelningen. De ortopediska patienterna skattade sig mindre återhämtade efter en månad jämfört med det första tillfället gällande vissa problem. En rankning av problem/svårigheter visade på olikheter mellan patienter som genomgått ortopedisk kirurgi och patienter som genomgått generell kirurgi och efter en månad var rankningen väsentligt förändrad. Inom gruppen som genomgått generell kirurgi framkom signifikanta skillnader i global återhämtning mellan GBP patienter och patienter som genomgått stor bukkirurgi (colon/ileum) både i akut återhämtningsfas och efter en månad. Den ortopediska gruppen var mer jämförbar inbördes. Inom den ortopediska gruppen framkom inga signifikanta skillnader i global återhämtning mellan patienter som genomgått ledbyten och patienter som genomgått en operation efter en fraktur, varken vid första tillfället (dag 1-4 efter operationen) eller efter en månad. Patienter som genomgått en GBP var

generellt mer återhämtade än de andra grupperna och uttryckte också att de hade förbättrats efter en månad jämfört med perioden före operationen.

Delstudie V: Mönster och förändringar i patienters postoperativa återhämtning i ett korttids perspektiv.

I studie IV saknades mätningar av förändring i återhämtning över tid och gruppernas inbördes homogenitet behövde ytterligare utforskas. Vi använde en annan metod som är utvecklad för att analysera förändring över tid i paraddata. Denna metod ger möjlighet att utvärdera systematisk förändring på gruppnivå, separat från eventuell förekomst av individuell variation. Även denna studie visade att de ortopediska patienterna överlag upplevde en lägre nivå av återhämtning jämfört med patienter som genomgått generell kirurgi. Alla stora grupper (ortopedi, generell kirurgi, akut och elektiv kirurgi) och alla undergrupper (frakturkirurgi, GBP och öppen bukkirurgi) förutom patienter som genomgått ledbyten, indikerade en signifikant förändring på gruppnivå mot lägre nivåer av problem efter en månad avseende global återhämtning. Inom de stora grupperna indikerades också signifikanta förändringar beroende på individuell variation, förutom inom den akuta gruppen. När grupperna renodlades till undergrupper, indikerade förändringarna huvudsakligen homogenitet avseende den globala återhämtningen. Gällande återhämtning på dimensionsnivå, skattades de ortopediska grupperna som mindre återhämtade rörande sin psykologiska funktion efter en månad jämfört med vid det första tillfället (dag 1-4 efter operationen). Detta resultat konfirmerar de procentuella indikationerna inom den psykologiska dimensionen i studie IV. Den procentuella andel patienter som rapporterade att de kände oro före operationen var högst för GBP patienterna (72%) och lägst för patienter som genomgått ledbyten (26%). Dock var patienter som genomgått en GBP bäst återhämtade både avseende den psykologiska dimensionen och global återhämtning. För gruppen som genomgått ett ledbyte kunde ett motsatt mönster skönjas. De skattade sin psykologiska funktion som signifikant försämrade efter en månad jämfört med första tillfället.

Konklusion

Patienters upplevelser och uppfattningar av att genomgå en operation kan övergripande förstås som ett förlopp från att vara sårbar mot återhämtning, inkluderat ett nytt förändrat liv. Återkommande i alla studier är att patienterna kände sig sårbara på olika sätt. Att lida av en potentiellt dödlig åkomma som fetma, men känna hopp om kirurgisk bot och att drabbas av en akut skada som resulterar i en operation som syftar till att återställa ursprungligt skick innebär vitt skilda utgångspunkter före operationen. Ett förlopp mot återhämtning som innebär att återgå till preoperativa nivåer av oberoende/beroende kunde urskiljas. Dock framträdde även ett förlopp mot ett nytt förändrat liv för patienter som genomgått en GBP. Ett nytt eller förändrat liv kan också förstås för andra kirurgiska grupper, då det inte alltid är möjligt att återhämta sig till preoperativa nivåer. Områden för kvalitetsförbättring identifierades, såsom information och den fysiska vårdmiljön på den postoperativa enheten. När patienter genomgår en operation, inkluderar nöjdhet med information inte nödvändigtvis att få så mycket och detaljerad information som möjligt; behov av information är i hög grad personligt. På den postoperativa enheten är det essentiellt att minimera insynen mellan patienterna så mycket som möjligt, men behålla närheten till personalen. Återhämtningen för ortopediska patienter är påfrestande och stödet för dessa patienter bör förbättras framförallt efter hemgång från sjukhuset. Sammanfattningsvis bör preoperativ support innefatta en standardiserad del, knuten till den generella proceduren som är liknande för alla patienter som genomgår en operation. Exempel på detta kan vara att patienten får konkret information om vistelsen på den postoperativa enheten. Support för patienter som genomgår en operation bör även vara personcentrerad och kirurgispecifik. Detta innebär exempelvis att lyssna till patientens förväntningar inför framtiden, att anpassa möjligheten till deltagande i beslut efter patientens förmåga och önskan samt att ta hänsyn till den kirurgiska proceduren med dess möjligheter och begränsningar. På så sätt kan patienter på ett realistiskt sätt stärkas mot återhämtning inkluderat ett nytt förändrat liv.

ACKNOWLEDGMENTS

Thanks to all of the 199 patients who participated in these studies for providing us with your knowledge and making this research possible. Also, thanks to all of the nurses and former colleagues in the surgical and orthopedic wards that helped with the recruiting of patients. Thanks especially to Ann-Marie Lundström at the surgical clinic and Gisela Hedengren at the orthopedic clinic who recruited participants for the first studies.

To the Department of Health Science, Luleå university of Technology, thanks for funding my research education, and thanks to prefekt Mai Lindström and Professor Kerstin Öhrling for your support.

Thanks to my head supervisor Associate Professor Åsa Engström; you brought me into this, to me, unknown world of academy and research, and you believed that I might be able to manage this.

To my co-supervisor Dr. Britt-Marie Wälivaara, thanks for your kind and reflective support; you get me to sometimes see the light in the dark.

Thanks to my co-author Dr. Irene Wikman for your support in the unknown statistical world, including SPSS. Thanks also to Professor Lars Nyberg and Statistician Lars Holmgren for support with the statistical issues.

To my colleagues and chiefs in the ICU, thanks for your reception and your clinical support in the work when I came back after three years ‘at the desk.’ This has meant a lot to me.

Thanks to my PhD-student colleagues. Especially thanks to Sophie Nordmark, Annette Johansson and Maria Andersson Marchesoni for sharing our ‘everyday’ issues

regarding research and life over five years. Going from team-based clinical work as a nurse to the often solitary work at the computer desk was not an entirely easy switch.

Thanks to Erika Forsberg, photographer of the cover picture of the Arjeplog mountains.

Thanks to my parent's Gunnel and Henry Forsberg and my siblings Maria, Erika and Benjamin Forsberg; you have in some strange way believed in and always supported me to struggle 'until the bitter end'.

To my four children; Linn, Jennie, Herman and Hubert. I cannot say thank you for your endurance because you did not choose your mother. Thus, I love you all more than you can imagine.

To Johan Zetterström, my beloved partner and coworker in life's ups and downs for the past 18 years. I hope we progress together towards 'a new, altered life'.

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