

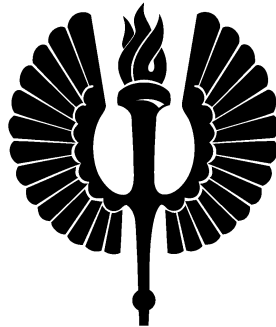
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MEDICA – ODONTOLOGICA

QUALITY OF ABDOMINAL SURGICAL NURSING CARE

by

Natalja Istomina



TURUN YLIOPISTO
UNIVERSITY OF TURKU

Turku 2011

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ACADEMIC DISSERTATION

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Turku 2011

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*To Igor and our daughters Katerina and Arina
and
To my mother Galina and father Stanislovas*

Natalja Istomina

QUALITY OF ABDOMINAL SURGICAL NURSING CARE

Department of Nursing Science, Faculty of Medicine, University of Turku, Finland
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ABSTRACT

The study evaluates the quality of abdominal surgical nursing care. The data were collected from patients (n=1208) having undergone abdominal surgical operations on their last day of hospitalization and nurses (n=218) working in the same wards. Three instruments originally created in Finland and adapted to the Lithuanian context were used: (1) Good Nursing Care Scale for patients and nurses (GNCS-P, GNCS-N), (2) Nurse Competence Scale (NCS), and (3) Nurse Empowerment Scale (NES). Patient and nurses' perceptions of the quality of nursing care were evaluated. In addition, nurses' perceptions of their competence and empowerment were evaluated.

The patient and nurses' perceptions of the quality of abdominal surgical nursing care were positive, with more criticism in the nurses' perceptions. Both patients and nurses gave the lowest evaluation to the quality in the progress of nursing care and the co-operation with significant others. The nurses gave the highest evaluation to the self-assessed level of their competence and the frequency of using competences in practice, with the highest assessment given to situation management and their role at work and the lowest to teaching-coaching and ensuring quality. The nurse perceptions of their empowerment were positive in the qualities and performance of an empowered nurse and empowerment promoting factors, with the highest evaluation in moral principles and sociability and the lowest evaluation in the future-orientedness and expertise. The empowerment-impeding factors were evaluated as negative. The perceptions of the quality of nursing care of both patients and nurses had significant correlations with patient and nurse satisfaction and nurse job independence. The nurse perceptions of their competence and empowerment correlated with their education, the type of the nurse license, completed courses of development of their knowledge and skills, nurse job independence, and nurse satisfaction. The nurse perceptions of the quality of nursing care had a positive correlation with their perceptions of competence and empowerment. Generally, the quality of nursing care was evaluated as high and had correlations with the patients' demographic and satisfaction factors and with the nurse demographic, work-related, and satisfaction factors.

The study produced the knowledge that the quality in co-operation with significant others and the progress of nursing process, surgical nurse competence in teaching-coaching, and future-orientedness of surgical nurse empowerment need to be improved in order to develop the quality of abdominal surgical nursing care. The knowledge may be used to offer better services for abdominal surgical patients and increase their satisfaction with nursing care, as well as to increase nurses' satisfaction with work and independence at work. The study suggests implications for clinical practice and management, nursing education, and nursing research.

Keywords: quality, nursing care, abdominal surgical care, nurse, competence, empowerment, surgical patient, Lithuania

ABDOMINAALIKIRURGISTEN POTILAIEN HOITOTYÖN LAATU

Hoitotieteen laitos, Lääketieteellinen tiedekunta, Turun yliopisto, Suomi

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TIIVISTELMÄ

Tämän tutkimuksen tarkoituksena oli arvioida abdominaalikirurgisten potilaiden hoitotyön laatua potilaiden ja hoitajien arvioimana. Lisäksi sairaanhoitajat arvioivat omaa hoitotyön osaamistaan ja voimaantumistaan. Tutkimusaineisto kerättiin abdominaalileikatuilta kirurgisilta potilailta (n=1208) heidän viimeisenä sairaalassaolopäivänään ja heitä hoitaneilta sairaanhoitajilta (n=218). Tutkimusaineiston keruussa käytettiin kolmea Suomessa kehitettyä mittaria, jotka muokattiin liettualaiseen hoitotyöhön soveltuvaksi. Mittarit olivat (1) Hyvän hoidon arviointimittari potilaille ja sairaanhoitajille (GNCS-P, GNCS-N), (2) Sairaanhoitajan pätevyysmittari (NCS) ja (3) Sairaanhoitajien valtaistumista arvioiva mittari (NES).

Potilaiden ja sairaanhoitajien arviot abdominaalikirurgisten potilaiden hoitotyön laadusta olivat positiivisia, tosin sairaanhoitajat olivat arvioinneissaan hieman kriittisempiä kuin potilaat. Sekä potilaat että sairaanhoitajat arvioivat heikoimmiksi hoitoprosessin laadun ja yhteistyön potilaan läheisten kanssa. Sairaanhoitajien ja potilaiden arviot hoitotyön laadusta korreloivat merkittävästi potilaiden ja sairaanhoitajien tyytyväisyyden ja sairaanhoitajien työn itsenäisyyden kanssa. Sairaanhoitajat itse arvioivat oman osaamisensa hyväksi. Parhaiten he arvioivat osaavansa tilanteiden hallinnan ja työrooliin liittyvät tehtävät. Heikoimmin sairaanhoitajat arvioivat osaavansa potilaiden opettamisen ja ohjaamisen ja hoidon laadun varmistuksen. Sairaanhoitajien käsitys omasta vaikutuksestaan potilaiden hoitoon oli positiivinen ja se korreloi sairaanhoitajien koulutuksen, ammattinimikkeen, täydennyskoulutukseen osallistumisen, työn itsenäisyyden ja työtyytyväisyyden kanssa. Sairaanhoitajien käsitys hoitotyön laadusta korreloi positiivisesti heidän käsityksiinsä omasta osaamisestaan ja voimaantumisestaan. Pääasiassa hoitotyön laatu arvioitiin korkeaksi ja se oli yhteydessä potilaiden demografisten ja tyytyväisyyteen liittyvien tekijöiden kanssa sekä sairaanhoitajien demografisten, heidän työhönsä ja tyytyväisyyteensä liittyvien tekijöiden kanssa.

Tutkimuksesta saatua tietoa voidaan käyttää parantamaan abdominaalikirurgisten potilaiden hoitotyötä ja potilaiden tyytyväisyyttä hoitoonsa sekä lisäämään sairaanhoitajien tyytyväisyyttä työhönsä. Tulosten perusteella yhteistyötä potilaan läheisten kanssa, hoitoprosessin laatua, leikkaushoidon ohjaus- ja opetusosaamista ja leikkaushoidon tulevaisuuden suunnittelua on parannettava, jotta abdominaalikirurgisten potilaiden hoidon laatu voi parantua. Tuloksia voidaan hyödyntää hoitotyön kliinisessä käytännössä, hoitotyön johtamisessa, hoitotyön koulutuksessa ja hoitotyön tutkimuksessa.

Avainsanat: laatu, hoitotyö, abdominaalileikkaus, sairaanhoitaja, kompetenssi, valtuutus, leikkauspotilas, Liettua.

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ABBREVIATIONS

ANOVA	Analysis of Variance
AORN	Association of PeriOperative Registered Nurses
CINAHL	Cumulative Index for Nursing and Allied Health Literature
GNCS-N	Good Nursing Care Scale for Nurses
GNCS-P	Good Nursing Care Scale for Patients
ICN	International Council of Nurses
KMO	Kaiser-Meyer-Olkin
NCS	Nurse Competence Scale
NES	Nurse Empowerment Scale
NPC	Nurse Perceptions of their Competence
NPE	Nurse Perceptions of their Empowerment
NPQ	Nurse Perceptions of the Quality of nursing care
OECD	Organization for Economic Co-operation and Development
PCA	Principal Component Analysis
PPQ	Patient Perceptions of the Quality of nursing care
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
VAS	Visual Analogue Scale
WHO	World Health Organization

LIST OF ORIGINAL PUBLICATIONS

This thesis is based on the following publications which are referred to in the text by Roman numerals from I to IV:

I Istomina N, Suominen T, Razbadauskas A, Leino-Kilpi H. 2011. Research on the Quality of Abdominal Surgical Nursing Care: A Scoping Review. *Medicina (Kaunas)* 47(5):245-56.

II Istomina N, Suominen T, Razbadauskas A, Martinkenas A, Leino-Kilpi H. 2011. Patient and nurse perceptions about the quality of abdominal surgical nursing care with special interest in the role of significant others (Submitted).

III Istomina N, Suominen T, Razbadauskas A, Martinkenas A, Meretoja R, Leino-Kilpi H. 2011. Competence of Nurses and Factors Associated With it. *Medicina (Kaunas)* 47(4):230-237.

IV Istomina N, Suominen T, Razbadauskas A, Martinkenas A, Kuokkanen L, Leino-Kilpi H. 2011. Lithuanian Nurses' Assessments of their Empowerment. *Scandinavian Journal of Caring Sciences* (In press).

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1 INTRODUCTION

Over the last decade, the number of patients in need of abdominal surgery has been increasing (DeFrances et al. 2008; OECD Health Data 2010). In European countries, as well as in the USA, abdominal surgical operations were in the second place in the rating of all surgical operations (DeFrances et al. 2008; National Center for Health Statistics of USA 2008; Lithuanian Health Statistics 2009; OECD Health Data 2010). Patients undergoing abdominal surgery expect high quality of health care, and nurses play a significant role in the process together with other health care providers. High quality nursing care may predicate the quality of life of the patients (Morris et al. 2006; Urbach et al. 2006) and their social and economic well-being.

A large amount of official documents describe and define the quality of health care. The documents are upgraded as frequently as it is necessary. A quality system aiming to upgrade the quality and equity of patient care includes the following elements: standards, clinical guidelines, standard operating procedures, records, and audit (WHO 2008). In accordance with the documents of the European Commission (2008), the EU member states were committed to accessible, high-quality, and sustainable health care. The quality of health care is also a priority of the health care reform in Lithuania (Piligrimiene et al. 2005). Lithuania had implemented the *Programme of Ensuring the Quality of Health Care for 2005–2010* at the governmental level (Order of the Minister of Health No. V-642 2004). The document laid out an official definition of the concept of health care quality with a goal of establishing its holistic view (Order of the Minister of Health No. V-711 2007). The quality of health care was a step forward in increasing the probability of attaining the intended health outcomes for individuals and public adequate to professional knowledge (Order of the Minister of Health No. V-642 2004). However, there is a lack of measuring, monitoring, and developing of the quality of health care in Lithuania. The role of nursing is important in the process.

The quality of nursing care can be defined from the viewpoints of patients, nurses, physicians, and other health care providers (cf. Leino-Kilpi et al. 1992, 1994; Idvall et al. 1998; Al-Kandari et al. 1998; Leinonen et al. 2003; Salomon et al. 1999; Larrabee & Bolden 2001; Zhao et al. 2008), including the opinion of significant others (cf. Leino-Kilpi et al. 1992; 1994; Isola et al. 2003; Morris et al. 2006; Pelander 2008; Zhao et al. 2008). The history of defining and evaluating the quality in health care probably extends as far back in time as does the history of nursing care since the days of Florence Nightingale (Idvall et al. 1999; Leinonen et al. 2002). The perceptions of all involved persons are significant for the defining and development of the quality of nursing care. However, patient and nurses' opinions of quality nursing care have not been adequately represented in studies (Burbans & Alligood 2010) and should be explored in detail. The patient (PPQ) and nurse (NPQ) perceptions of the quality of nursing care in the study is defined as a set of elements of human-oriented and task-oriented activities, staff characteristics, environment, preconditions, progress of nursing care, and co-operation with significant others (Leino-Kilpi 1991; Leino-Kilpi et al. 1994; Leinonen 2002).

The nurse perceptions of their competence are important to measure and evaluate for the development of the competence (Redfern et al. 2002; Meretoja et al. 2004; Svediene et al. 2009). The competence of surgical nurse has been defined as the knowledge, skills, and abilities to fulfil patient care activities perioperatively (AORN 2004). In Lithuania, the competence of general practice nurse is defined as a set of knowledge, abilities, and skills which nurse acquires after graduating from the general practice nursing studies with a respective professional qualification and during permanent development according to evidence based nursing (MN:28, Lithuania 2004). The nurse competence has been divided to clinical competence and professional competence (Lofmark et al. 1999; Morton 2005; Aari et al. 2008). In the present study, the concept of nurse competence has been defined through three aspects: the ability of nurse to practice in a specific role; the capacity to incorporate knowledge and skills into actual practice by integrating the cognitive, affective and psychomotor domains of practice; and the professional development towards expertise (Meretoja et al. 2002). The nurse perceptions (NPC) of their competence were evaluated. The competencies associated with quality can greatly impact the day-to-day lives of nurses (Hall et al. 2006). The correlation between competence and empowerment may be a core aspect for the understanding of quality development.

The nurse perceptions of their empowerment are usually positive, and the concept of empowerment is understood as an active and positive internal process of professional growth (Falk-Rafael 2001; Hajbaghery & Salsali 2005). However, in some other than English languages there is no good translation of the word *empowerment*, and therefore the precise understanding of the word may be difficult to achieve. Thus, e.g., the Lithuanian language has no perfect equivalent for the term *empowerment*. Nurse empowerment has not been widely explored in Lithuania (Zydzianaite 2002; Algenaitė 2006). The empowerment of nurse has been defined as their enabling to act (Chandler 1992; Ellis-Stoll & Popkess-Vawter 1998). From the nurses' perspective, nurse empowerment has been explored as a process of nursing self-management (Laschinger et al. 1994; Laschinger 1996; Irvine et al. 1999; Kuokkanen et al. 2001, 2002, 2003; Suominen et al. 2005; Bradbury-Jones et al. 2007; Corbally et al. 2007; Faulkner & Laschinger 2008; Knol & van Linge 2008; Rankinen et al. 2009; Zurmehly et al. 2009; Armstrong et al. 2009). In the present study, the nurse perceptions of their empowerment (NPE) consisted of the qualities and performance of empowered nurse, and the factors promoting and impeding empowerment as the elements of professional growth and development in the nursing profession (Kuokkanen 2003) were evaluated. The concept of empowerment is frequently used in relation to the quality of care (Hajbaghery et al. 2005), as well as to the concept of nurse competence (Meretoja 2003; Currie et al. 2005).

In the study, the quality of abdominal surgical nursing care was evaluated on the basis of the patient (PPQ) and nurse (NPQ) perceptions of the quality of nursing care, nurse perceptions of their competence (NPC), and nurse perceptions of their empowerment (NPE). The factors related to the quality of nursing care were evaluated. The findings of the study could be useful for the development of clinical practice and management, nursing education, and further research.

2 LITERATURE REVIEW

The review of the literature for the present study covered the period from the beginning of databases to March 2011: MEDLINE (1966 – 2011), CINAHL (1982 – 2011), Cochrane Library (1972 – 2011), PsycINFO (1806 – 2011). The scoping review was carried out in descriptive phase 1 to describe the existing research in the quality of abdominal surgical nursing care (Paper I). The employed search words were ‘quality of nursing’, ‘abdominal’ or ‘abdomen’, ‘surgical’ or ‘perioperative’. The literature review was also conducted in empirical phase 3 (Paper II, III, IV) by employing search words ‘quality of nursing care’, ‘patients’ perceptions’, ‘nurses’ perceptions’, ‘patient relatives’ or ‘significant others’, ‘nurse competence’, and ‘nurse empowerment’ in various combinations. The database search for the scoping review was based on the same databases. The findings of literature reviews from descriptive phase 1 (Paper I) and empirical phase 3 (Paper II, III, IV) were summarized in the present review of literature, and an additional search for literature was done.

The search for literature was first based on the evaluation of abdominal surgical nursing care. The second search, however, showed a lack of studies in the quality of abdominal surgical nursing care; for that reason, in the review, the literature on surgery patients and nurses working in the surgical field was also included. It was assumed that there can be similarities in the nursing care of patients having undergone any surgical procedures (e.g. Lynn et al. 1999; Barrio et al. 2002; Leinonen et al. 2003; Loan et al. 2003; Yen & Lo 2004; Lynn et al. 2007; Zhao et al. 2008; Cho et al. 2009; Lucero et al. 2009) which allowed to view the problems in the review in a broader perspective. In the review, however, the studies in the field of abdominal surgical nursing care received a special emphasis.

The literature review in the summary consists of three main parts. First, the quality of abdominal surgical nursing care was described, starting with patient and nurses’ perceptions of the quality of nursing care, followed by nurses’ perceptions of their own competence and empowerment. Second, the research concerning the factors related to the quality of nursing care was identified. The background factors related to patient and nurse perceptions of the quality of nursing care and nurse perceptions of their competence and empowerment were analyzed. The literature review continued by concentrating on the relationships inside the field of the quality of abdominal surgical nursing care, i.e. the relationship between the perceptions of the quality of nursing care and the competence and empowerment of nurse. Third, the literature review was summarized.

2.1 Evaluation of the quality of abdominal surgical nursing care

All patients and nurses aspire to the quality of nursing care, and every health care facility claims to provide it (Williams 1998). Literature from different countries in various fields has been supporting the need to define the quality of nursing care from the perspectives of patients and health care providers. However, it is extraordinarily difficult to define what quality is (Donabedian 1969). The quality is not a single, homogeneous property (Donabedian 1969), not permanent, but rather a complex construct incorporating values,

beliefs, and attitudes of individuals involved in a health care interaction (Gunter & Alligood 2002; Tafreshi et al. 2007). Quality is thought to be complex and multidimensional, but what it means varies depending on the context (Currie et al. 2005; Izumi et al. 2010).

The quality of surgical nursing care may have different meanings for different people because of their different understanding of the professional standards of practice (e.g. Meraviglia et al. 2002; Loan et al. 2003), patient and/or nurse satisfaction (e.g. Oermann & Templin 2000; Dozier et al. 2001; Radwin et al. 2003), patient and/or nurse characteristics (Leinonen et al. 2003; Sidani et al. 2004), and even subjective opinions (Jennings & Staggers 1999; Stichler & Weiss 2001). The quality of nursing care can also be defined differently because of different patient group definitions, dimensions, and priority among attributes (Jennings & Staggers 1999; Lee & Yom 2007; Izumi et al. 2010). Thus, e.g., Kunaviktikul et al. (2001) defined the quality of nursing care as nursing response to the physical, psychological, emotional, social, and spiritual needs of patients provided by a caring manager, so that the patients would be cured and would be able to lead healthy and normal lives; and both patients and nurses would be satisfied.

In Lithuania, there is a shortage of studies focused on the quality of nursing care and there are no definitions suggested for the quality of nursing care. Several documents on the nursing practice thought to relate to quality issues, although they do not contain a single word about them, are the Lithuanian regulations of the nursing practice: Law on Nursing and Midwifery Practice, No. XI-343 (2009) and Norm of Medicine MN:28 (2004). It is a challenge to explore the quality of abdominal surgical nursing care in Lithuania.

In the literature review, the quality of surgical nursing care is presented as a set of patient (PPQ) and nurse (NPQ) perceptions of the quality of surgical nursing care and nurse perceptions of their competence (NPC) and empowerment (NPE).

2.1.1 Patient and nurse perceptions of the quality of nursing care

The quality of nursing care has frequently been defined from the viewpoint of surgical patients. Patient perceptions of the quality of nursing care have usually been explored on the basis of patient satisfaction as a major indicator of quality (e.g. O'Connell et al. 1998; Lumby & England 2000; Dozier et al. 2001; Larrabee & Bolden 2001; Richard et al. 2010). Patient satisfaction may be defined as an individual subjective view of patient of medical services received at hospital. Patient satisfaction has been adopted as one of the indicators of care quality (Tzeng & Yin 2008). There is a consensus that patient satisfaction is an important outcome that must be evaluated and measured (Richard et al. 2010), but patient satisfaction cannot be the main measurement of the quality of surgical nursing care. Moreover, patient satisfaction and the quality of medical services can be two distinct and opposite concepts (Tzeng & Yin 2008). Patients describe quality in terms of the interpersonal aspects of care, how well they were treated, and the responsiveness of the provider to their needs (Stichler & Weiss 2001). However, patient satisfaction with

the nursing care directly influences hospital care; organizations are routinely using such data to direct quality improvement initiatives (Larrabee & Bolden 2001).

Elements of the quality of nursing care identified in the studies using empirical analyses of the data from patients could be categorized broadly into cognitive and technical competence and affective or interpersonal skills (Izumi et al. 2010). Stichler and Weiss (2001) recommended targeting subsets of patient groups rather than treating all patients as a homogeneous group. Moreover, for defining the quality of nursing care, a population-based approach could be used, segmenting patients by key characteristics as a critical and meaningful method (Jennings & Stagers 1999). For defining the quality of abdominal surgical nursing care, it is necessary to evaluate the perceptions of patients undergoing abdominal surgery in order to have a deep and broad understanding of the meaning of nursing care quality.

Patient relatives' perceptions of the quality of nursing care are important for the definition and understanding of quality (Leino-Kilpi 1990, 1992; Isola et al. 2003; Morris et al. 2006; Zhao et al. 2008), but they have not been explored enough in the field of abdominal surgery. Patients usually receive high quality nursing care, but significant others are not involved in the due to a number of reasons. However, the participation of significant others is important for the quality of the life of patients undergoing abdominal surgery (Morris et al. 2006), especially for their social support and psychological and emotional well-being.

Nurses' perceptions of the quality of surgical nursing care are important for the definition and understanding of quality. According to Donabedian (1966), many authors define the quality of nursing care as a structure-process-outcome framework which has been relevant for almost 50 years (cf. e.g. Sochalski 2004; Yen & Lo 2004). However, Donabedian's model focuses on health care, not nursing care; and his definition of the quality of care that individual practitioners provide to individual patients was useful in defining the quality of nursing care at an individual versus organizational level (Izumi et al. 2010) and was difficult to apply by evaluating the specificity of abdominal surgical nursing care. There is a big amount of categories of quality. Thus, e.g., the study of Greenslade and Jimmieson (2007) analyzed the quality of nursing care from the nurse viewpoint as including information, coordination of care, social support, technical care, and nurse perceptions of their relations with other nurses and health care providers: interpersonal support, job-task support, compliance, and volunteering for additional duties. Nursing processes and activities are the main elements of quality in the studies as viewed from the nurses' perspective (cf. Leino-Kilpi & Vuorenheimo 1994; Leinonen et al. 2003; Zhao et al. 2008).

Patients and nurses have different standards and criteria in evaluating the quality of nursing care (Leinonen et al. 2003; Lee & Yom 2006; Yiu et al. 2011). Nurses tended to give lower assessments to the quality of nursing care in comparison with patients (Leinonen et al. 2003; Zhao et al. 2008). Several abdominal surgical patients' information needs, such as information on the condition of illness, psychological support, and cultural practice have not been adequately understood by nurses (Yiu et al. 2011). Lee and Yom

(2006) found that nurses' expectations and performance were higher than those of patients, while patients' satisfaction with nursing care was higher than that of nurses. Yet both nurses and patients identified important affective dispositions that the nurse had to possess to deliver high quality care (Gunther & Alligood 2002). The differences in the perceptions of patients and nurses may have been influenced by some factors such as patient safety (e.g. Institute of Medicine 2000; Larrabee & Bolden 2001; Hall et al. 2008; Burhans & Alligood 2010) and nurse responsibility (e.g. Williams 1998; Tafreshi et al. 2007), professional standards of practice (e.g. Meraviglia et al. 2002; Loan et al. 2003), patient and nurse satisfaction (e.g. Oermann & Templin 2000; Dozier et al 2001; Radwin et al. 2003), patient outcomes (e.g. Yen & Lo 2004; Lucero et al. 2009), and patient and nurse characteristics (Leinonen et al. 2003; Sidani et al. 2004). However, abdominal surgical patients and their nurses may have parallel perceptions of their postoperative physical needs, e.g. wound management and surgical follow-up care and their concerns about the prognosis of the disease and self-care skills (Yiu et al. 2011).

2.1.2 Nurse perceptions of their competence

The competence of nurses has been defined from different viewpoints as an objective or subjective concept (e.g. Benner 1982, Redfern et al. 2002; Meretoja et al. 2004; McCready 2007; Josefsson et al. 2008; Lenburg et al. 2009; Lin et al. 2010; MacMillan-Finlayson 2010). Thus, e.g., Benner (1982) proposed that nurse competence was the ability to perform a task with desirable outcomes under varied circumstances of the real world. The nurse competence could be evaluated as perceived by surgical nurses. Tzeng (2004) defined the competence as personal skills developed through professional nurse training courses and was considered to be an outcome of those courses. Furthermore, competence was defined as a complex of knowledge, performance, skills, and attitudes of a nurse; however, a holistic definition of competence needed to be agreed upon and operationalized (Cowan et al. 2005). In the study, the definition of Meretoja et al. (2004), was used to the effect that nurse competence, as perceived by nurses, could be defined by three aspects: the ability of a nurse to practice in a specific role; the capacity to incorporate knowledge and skills into actual practice by integrating the cognitive, affective, and psychomotor domains of practice; and the professional development towards expertise.

Nursing education plays an important role in the nurse perceptions of their competence (e.g. Robinson & Griffiths 2007; Raholm et al. 2010; Salminen et al. 2010). Many developed countries are in the throes of debate and change of their systems of nurse education (Robinson & Griffiths 2007). The decisions about changing aspects of pre- and post-registration nurse education are likely to be directed towards achieving competencies at the studies of the first cycle, Master, and doctoral level within Europe (Zabalegui et al. 2006). The competence categories for registered nurses should be demonstrated by curricula (Directive 2005/36/EC, Salminen et al. 2010). Furthermore, a well educated surgical nurse should be able to work independently and autonomously.

The competence of general practice nurse and requirements for nurses working with abdominal surgical patients are defined in Lithuanian Medical Norm MN: 28, 2004

“General Practice Nurse: Rights, Duties, Competence, and Responsibility”. According to the Medical Norm (MN: 28, Lithuania, 2004), the professional competence of surgical nurse is a set of knowledge, abilities, and skills to be achieved by completing general practice nursing studies with a respective professional qualification. Law on Nursing and Midwifery Practice (Law No. XI-343, 2009) (1) provides the general provisions and definitions of nursing and midwifery; (2) defines the nursing and midwifery practice in Lithuania, the requirements for acquiring the right to work as a nurse or midwife and for nurse- and midwife- practitioners, the conditions for nursing and midwifery activities, and the procedures of getting the license for the nursing and midwifery practice; and (3) the rights, duties, and responsibilities of nurse and midwife. Lithuanian nurses trained in the Soviet style were technically competent, but they lacked information and a grounding framework (Karosas 1995). However, big changes in nursing education started after the declaration of Lithuanian Independence from the Soviet Union (Kalnins 1995, Karosas 1995; Kapborg 2000; Kalnins et al. 2001). Higher education has been a requirement for nurses since 2010 (Decree No. XI-343, 2009). However, there are no regulations in terms of differentiation of nurse practical work in clinical settings or clear requirements for nurse managers (Blazeviciene & Novelskaite 2010). A nurse with a secondary education level and a nurse with a Bachelor or Master’s degree are doing the same work. However, nurse educators, nurse practitioners, and nurse researchers are having a lot of discussions inside their groups and in media about the place of nursing in the Lithuanian health care system, nursing education, nurse competence, quality of nursing care, and the links between them.

2.1.3 Nurse perceptions of their empowerment

Empowerment seems likely to provide an umbrella concept of professional development in nursing (Kuokkanen et al. 2000; Bradbury-Jones et al. 2008). Moreover, the purpose of nursing practice is to empower patients for optimal functioning or better health (Laschinger et al. 2010). The nurse perceptions of their empowerment (NPE) have been explored in previous literature (e.g. Manojlovich 2005; Faulkner & Laschinger 2008; Knol & van Linge 2009; Laschinger et al. 2009; Rankinen et al. 2009; Purdy et al. 2010; Cormley 2011; Suominen et al. 2011). The nurse empowerment as perceived by nurses has been explored as structural empowerment, psychological empowerment, and critical social empowerment, as well as the relationship between them (e.g. Laschinger et al. 1996; Laschinger et al. 2007; Faulkner & Laschinger 2008; Knol & van Linge 2009; Purdy et al. 2010; Wagner et al. 2010), and those approaches also relate to nurses working in abdominal surgery. Staff nurses’ perceptions of the structural empowerment have direct positive effects on work engagement and direct, as well as indirect, effects on their perceived work effectiveness (Laschinger et al. 2009).

The theoretical approach for analyzing nurse empowerment is important for getting the meaning of empowerment. Knol and van Linge (2008) and Rankinen et al. (2009) used three theoretical approaches in exploring the nurse empowerment proposed by Kuokkanen and Leino-Kilpi (2000): critical social theory, organizational and management theories, and social psychological theories. Bradbury-Jones et al. (2008) supported the said works and proposed the additional fourth poststructural approach to

exploring power and empowerment revealing the areas of nursing practice that other approaches had failed to illuminate.

Nurse empowerment has been categorized into the types of a stemming control in three domains: control over the content of practice, control over the context of practice, and control over competence (Manojlovich 2005; 2007). Hajbaghery et al. (2005) explored three main categories of empowerment: personal empowerment, collective empowerment, and the culture and structure of the organization, they believed empowerment to be a dynamic process that resulted from a mutual interaction between personal and collective traits of nurses, as well as the culture and the structure of the organization. Nurses needed power to be able to influence patients, physicians, and other health care professionals, as well as each other (Manojlovich 2007). In the present study, the definition of nurse empowerment made by Kuokkanen and Leino-Kilpi (2000) was used: empowerment was defined as a concept to describe the elements of professional growth and development in the nursing profession.

2.2 Factors related to the quality of abdominal surgical nursing care

The factors related to the quality of surgical nursing care are presented in two parts. First, the background variables related to the surgical patient and surgical nurse perceptions of the quality of nursing care and surgical nurse perceptions of their competence and empowerment are presented. Second, the relationship between nurse perceptions of the quality of nursing care, competence, and empowerment is identified.

2.2.1 Background variables related to the patient and nurse perceptions of the quality of nursing care, competence, and empowerment

Several background factors may have a positive and/or negative relationship with the quality of surgical nursing care. Controllable (dependent) variables related to the patient and nurse perceptions of the quality of nursing care are presented according to Donabedian's model (1966): the elements of structure, a process of nursing care, and the outcomes. Non-controllable (independent) variables of patients and nurses and their possible impact on the perceptions of quality of nursing care are also presented. All the background factors are divided to demographical variables, work-related factors, clinical factors, and satisfaction factors.

Factors related to the patient and nurse perceptions of the quality of nursing care

The perceptions of the quality of surgical patients and nurses may differ depending on demographical factors, such as education, gender, and age (Lumby & England 2000; Leinonen 2002; Mashlach Eizenberg 2011), or the time of hospitalization, marital status, type of surgery, and anesthesia (Leinonen et al. 2002). The patients with the previous experience of hospitalizations and surgeries, as well as those operated upon under regional anesthesia, gave higher evaluations to the quality of perioperative nursing care (Leinonen 2002) than other patient groups without previous experience or operated under general anesthesia. Younger patients have been more critical in their evaluations of

quality than older patients (Leinonen 2002). The surgical patients who rated their hospitalization as an overall positive experience and rated their nurses positively evaluated the quality of nursing care higher than those patients who were more critical of their overall experience and nurses' work (Lynn et al. 2007). The quality of surgical care was also evaluated higher by the patients who had had multiple contacts with the health care system: elderly patients, those with multiple hospitalizations, or patients with chronic diseases (Salomon et al. 1999). The patients thought that the key features of good nursing care were meeting patient needs and being respectful and kind to them (Larrabee & Boldvin 2001), as well as medical care (Bankauskaite et al. 2003). Preoperative education had a positive effect on the postoperative pain and recovery speed after abdominal surgery (Henderson et al. 2004; Lin et al. 2005).

The work-related factors, including staffing mix, time, workload, skill mix, and the organizational structure of health care, were related to the quality of surgical nursing care: e.g., a bigger proportion of nurses at the ward and/or a bigger average number of patients per nurse also had a positive correlation with the quality of nursing care in surgical wards (Aiken et al. 2002; Meraviglia et al. 2002; Loan et al. 2003; McGillis Hall et al. 2003; Sochalski 2004; Stanton 2004; Cho et al. 2009; Lucero et al. 2009). The hospital and ward characteristics and the level of hospital had an impact on the quality of nursing care (Al-Kandari & Ogundeyin 1998; Aiken et al. 2002; Cho et al. 2009), either positive or negative. The environment was a significant element of nursing care from the viewpoint of patients and caregivers (e.g. Stichler & Weiss 2000; Leinonen et al. 2003; Kunaviktikul et al. 2005; Lee & Yom 2007; Zhao et al. 2008; Izumi et al. 2010), and patients usually were more critical in their evaluations than nurses (Lee & Yom 2007). Nurses' ratings of the quality of patient care directly correlated with the quality of work environment (Kramer et al. 2011). From the viewpoint of nurses, the correlation between the quality of nursing care and several factors was found: consistent evidence of progress associated with higher levels of staffing by registered nurses and lower rates of adverse outcomes (Needleman et al. 2002), as well as nursing workload and the process of care indicators (Sochalski 2004). The workload of nurses had a negative effect on the quality of nursing care (Aiken et al. 2002; Needleman et al. 2002; Thompson et al. 2006; Al-Kandari et al. 2008). Furthermore, nurses' independent decisions about assessment, treatment, and nursing interventions for hospitalized patients were important determinants of the quality of care (Pearson et al. 2000).

The clinical factors and the process of nursing care, including nurses' values, beliefs (Hogston 1995, Stichler & Weiss 2000), and trusts (Williams 1998), clinical activities (Chang et al. 2002), being competent (Meretoja et al. 2003), and powerful (Kuokkanen et al. 2002), and working in a multidisciplinary team (Hogston 1995; Stichler & Weiss 2000) were related to the quality of nursing care. Lee and Yom (2007) established that there was a gap between patient and nurses' expectations and performance. The expectations were higher than the performance in both groups. Patients' feelings before, during, and after the surgery differed: pain, nausea, anxiety, and fear of anesthesia and surgery may have effected the perceptions of quality (Leinonen et al. 2002; Palese et al. 2005). For example, before the operation, almost all the patients felt anxiety, however, after the operation, 80 % of the patients felt well (Palese et al. 2005). Patients'

satisfaction with the pain management was an important indicator of quality (Kunaviktikul et al. 2005). The clinical quality indicators, such as medication error, nosocomial infections, falls, and skin integrity had a correlation with the quality of nursing care (Kunaviktikul et al. 2005). The nursing process as a critical element of quality from the nurses' perspective, characterized by nurse anticipation and prevention of patient problems and the nurses' ability to give good care, which led to discussions of elements of professional competence, continuing education for the nursing staff, and appropriate staffing (Stichler & Weiss 2000). Hurst and Smith (2011), reported comparisons between temporary and permanent staff work activities, the costs, and the quality of care, and concluded that temporary workers had an impact on staff activity and patient care. The quality of care can be influenced by nurse-physician relationship (Shen et al. 2011). Activities of nurses may be classified in different ways: e.g. human- and task-oriented activities (Leino-Kilpi 1990; Leinonen 2003; Pelander 2008) or basic activities and specific interventions (Ducci & Padilha 2007). The progress of a nursing process, such as patient admission to care, arrival at the hospital, and discharge and recovery at home, is important to evaluate (Leino-Kilpi 1992; Leinonen 2002) for gaining the knowledge of the improvement of the nursing process.

The outcomes, such as patient satisfaction and nurse job satisfaction, were related to the quality of nursing care and usually had a positive correlation with it, as perceived by patients and nurses (e.g. Salomon et al. 1999; Larrabee & Bolden 2001; Aiken et al. 2002; Tzeng & Ketefian 2002; Yen & Lo 2004; Kunaviktikul et al. 2005; Mrayyan 2006; Lee & Yom 2007). Patient satisfaction depended not only on good nursing care. Patients usually had evaluated the health care in general, not only nursing care, as based on their needs and expectations (Al-Kandari & Ogundeyin 1998; Lynn & Bradley 1999; Larrabee & Bolden 2001; Lee & Yom 2007; Izumi et al. 2010). They preferred to receive nursing care promptly enough or at the time of their need (Leino-Kilpi 1990; Larrabee & Bolden 2001; Leinonen et al. 2003; Zhao et al. 2008). In the study of Stichler and Weiss (2000), physicians and nurses rated the patient satisfaction as an important outcome, however, the patients stated that the expected results were more important than satisfaction. Patient satisfaction may be improved by staff nurses getting more organizational control (Aiken et al. 1999).

Factors related to the nurse perceptions of their competence

Several factors have been related to nurse competence, as shown in earlier studies (e.g. Meretoja et al. 2004b; Salonen et al. 2007; Dellai et al. 2009; Lenburg et al. 2009; Hurst & Smith 2011). Those factors could be divided into demographic variables (e.g. age, education, professional experience, etc.) and work-related factors (e.g. staffing, ward characteristics, etc).

Nurse demographic characteristics, such as their age, education, and professional experience, have been explored as related to nurse competence (Meretoja et al. 2004b; Tzeng 2004; Salonen et al. 2007). The age and the length of work experience correlated positively with self-assessed competence (Meretoja et al. 2004b; Salonen et al. 2007; Dellai et al. 2009). The competence of nurse was also positively influenced by the

duration of employment and education (Meretoja et al. 2004b; Svediene et al. 2009). Temporary workers spent less time with patients and generated more unproductive time than the permanent staff, while the quality score differences were inconclusive (Hurst & Smith 2011). The higher nursing education and adequate regulation system increased the competence of nurse (Raholm et al. 2010).

The relationship between work-related factors and nurse competence has been explored. The perceptions of nurse managers and staff nurses differed. Nurse managers tended to give higher assessment to nurse competence than clinical nurses or nursing students (Lofmark et al. 1999; Meretoja & Leino-Kilpi 2003; Gormley 2011). Nurse self-assessed competence in different work settings also differed (McCaughan & Parahoo 2000; Meretoja et al. 2002; Salonen et al. 2007). Nurses working with cancer patients reported an above-moderate level of competence, and they rated their competence level higher in physical than in psychosocial care (McCaughan & Parahoo 2000). Intensive care nurses assessed their competence level higher than nurses working at emergency units with also higher assessment of the competence in ensuring quality (Salonen et al. 2007).

Factors related to the nurse empowerment

Several factors have been related to nurse empowerment, such as nurse demographical variables (e.g. age, education, working experience, etc.), nurse satisfaction factors (e.g. job satisfaction, job motivation), and work-related factors (cf. Suominen et al. 2005; Corbally et al. 2007; Kuokkanen et al. 2007; Laschinger et al. 2007; Faulkner & Laschinger 2008; Knol & van Linge 2008; Zurmehly et al. 2009; Suominen et al. 2011).

The nurse demographic factors such as age, level of education, years of work experience, workload, and nurse position (ward nurse, head nurse, etc.) have been identified as related to the empowerment of nurse. Nurses' education and professional experience have a positive correlation with the work empowerment (Corbally et al. 2007; Roche et al. 2009; Kramer et al. 2011). Nurse managers have been more positive towards nurse empowerment than clinical nurses (Mok et al. 2002; Laschinger et al. 2007; Gormley 2011). Older nurses have been more positive than younger in their evaluations of psychological empowerment (Knol & van Linge 2009).

Research has shown that nurses who feel more satisfied with their jobs feel more effective in accomplishing their work and report higher levels of patient quality on their units (Laschinger et al. 2001; Corbally et al. 2007) than unsatisfied nurses. The empowered managers are more likely to motivate their staff than unempowered nurse managers (Haugh & Laschinger 1996). Empowered nurses experience less burnout (Laschinger et al. 2003) and less job strain (Laschinger et al. 2001) than unempowered nurses. Critical structural components of an empowered workplace can contribute to healthy, productive, and innovative nurse workforce with increased job satisfaction and retention (Wagner et al. 2010).

The correlation was also established between nurse empowerment and the organizational climate (Mok et al. 2002), organizational change factors, factors related to promoting and

impeding empowerment (Rankinen et al. 2009), nurses' work environment (Hall et al. 2008; Casey et al. 2010; Kramer et al. 2011), their attitudes towards their work, feelings of personal empowerment and respect (Faulkner & Laschinger 2008), as well as the intent to leave the current position and the intent to leave the profession (Zurmehly et al. 2009). Healthy work environments that support professional practice positively affect nurse retention, the level of job stress, work satisfaction, the quality of work life, patient safety, satisfaction, and the length of stay (Hall et al. 2008; Casey et al. 2010; Kramer et. 2011).

2.2.2 Correlations between the nurse perceptions of the quality of nursing care, competence, and empowerment

The correlation between the nurse perceptions of the quality of nursing care and competence is usually clearly presented: the competence of nurse should be ensured and increased for achieving high quality nursing care (e.g. McGarvey et al. 2000; Meretoja et al. 2001, 2003, 2004; Gunther et al. 2002; Leishman 2004; Fitzpatrick et al. 2006; Nestel et al. 2006; Salonen et al. 2007; Aari et al. 2008; Cowin et al. 2008; Dellai et al. 2009; Armellino et al. 2010). The competence is an essential factor for assuring quality, safety, and cost-effective health care (Defloor et al. 2006). Furthermore, along with the increasing complexity of nursing services, hospital employers are demanding qualified and competent staff nurses for high quality clinical practices (Tzeng 2004). Patients have indicated that competent staff who display a strong professional demeanor are essential to quality (Stichler & Weiss 2001). The competence assessment is important, because it significantly improves the quality of patient care and increases nurses' opportunities for professional growth and career development (Meretoja 2003).

The correlation between the perceptions of the quality of nursing care and empowerment is important for increasing the quality of nursing care and should be explored (Kuokkanen 2003). High-quality patient care depends on the nursing workforce that is empowered to provide care in accordance to the professional nursing standards (Laschinger et al. 2009). Nurse perceptions of the quality of care have been positively correlated to all aspects of the work empowerment (Gormley 2011). Laschinger et al. (2010) proposed a comprehensive model of nurse/patient empowerment that could be used as a guide for creating high-quality practice environments in nursing workplaces which ensured positive outcomes for both nurse and their patients. They argued that, as a result of having greater structural and psychological empowerment in their work settings, nurses were more likely to employ patient empowering behaviors, which, in turn, would result in higher levels of patient empowerment. Purdy et al. (2010) determined the correlation between nurses' perceptions of their work environment and the quality and risk outcomes for both the patient and the nurse in acute care settings. The results showed that the ability to function as a team was a key mechanism by which quality care was achieved. The nurses who were more empowered acted with more self-confidence, and the nurse-assessed quality of patient care and job satisfaction was higher in comparison with the nurses who were less empowered. Empowered workplaces resulted in positive outcomes for both nurses and patients, and the structural and psychological

empowerment positively impacted nurse-assessed quality of nursing care (Purdy et al. 2010).

The correlation between nurse perceptions of the competence and empowerment was investigated in a number of studies (cf. Kuokkanen et al. 2002; Petterson et al. 2006; Manojlovich 2007; Knol & van Linge 2009; Roche et al. 2009). Competence was found to be a necessary precursor for empowerment (Kramer & Schmalenberg 1993) which had its foundation in educational training. A low educational level may have contributed to nurses' powerlessness (Manojlovich 2007). Roche et al. (2009) proposed the model for evaluating the level of nursing expertise and competence by exploring the links between work empowerment, work relationships, and nurse control variables. The correlation between the structures of work empowerment and expert practice was not visible in their study. However, both nursing expertise and empowerment were related to the quality of nursing care and patient safety (Roche et al. 2009). The competence and psychological empowerment had a strong positive correlation (Knol & van Linge 2009).

2.3 Summary of the literature review

The quality of nursing care has been defined broadly and by many authors. However, the quality is an elusive concept and should be constantly and sequentially measured and monitored depending on national and international specialties, cultural differences, the time of nursing care, the specificity of units, needs of patients, significant others, and health care providers. The present literature review showed a lack of the definition and the meaning of particularities and features of the concept of the quality of abdominal surgical nursing care.

It is important to measure and evaluate abdominal surgical patient and nurses' dependent and independent variables for getting more knowledge about the quality of abdominal surgical nursing care for quality ensuring in practice. Surgical patient and nurses' perceptions of the quality of nursing care have been evaluated as positive, with more criticism coming from nurses. Nurse perceptions of competence and empowerment have been identified to be in a positive correlation with their perceptions of the quality of surgical nursing care. Several factors of both patients and nurses, such as demographic factors, satisfaction factors; patient clinical factors; and nurse work-related factors may have had a positive or negative influence on their perceptions of the quality of nursing care, competence, and empowerment. An urgent need is felt to establish a clear correlation between patient and nurses' perceptions of the quality of abdominal surgical nursing care, competence, and empowerment for gaining the knowledge for improving the quality of abdominal surgical nursing care.

In the present study, the quality of nursing care was evaluated as perceived by abdominal surgical patients and their nurses. In the literature review, studies in the abdominal surgery and also in general surgery nursing care were included. The theoretical framework of the study derived from the concept of the quality of abdominal surgical nursing care understood as a set of patient and nurse perceptions of the quality of nursing care and nurse perceptions of their competence and empowerment. Background factors

that correlated with the quality of abdominal surgical nursing care were identified and divided to demographic factors; patient clinical factors; nurse work-related factors; and satisfactions factors (Figure 1).

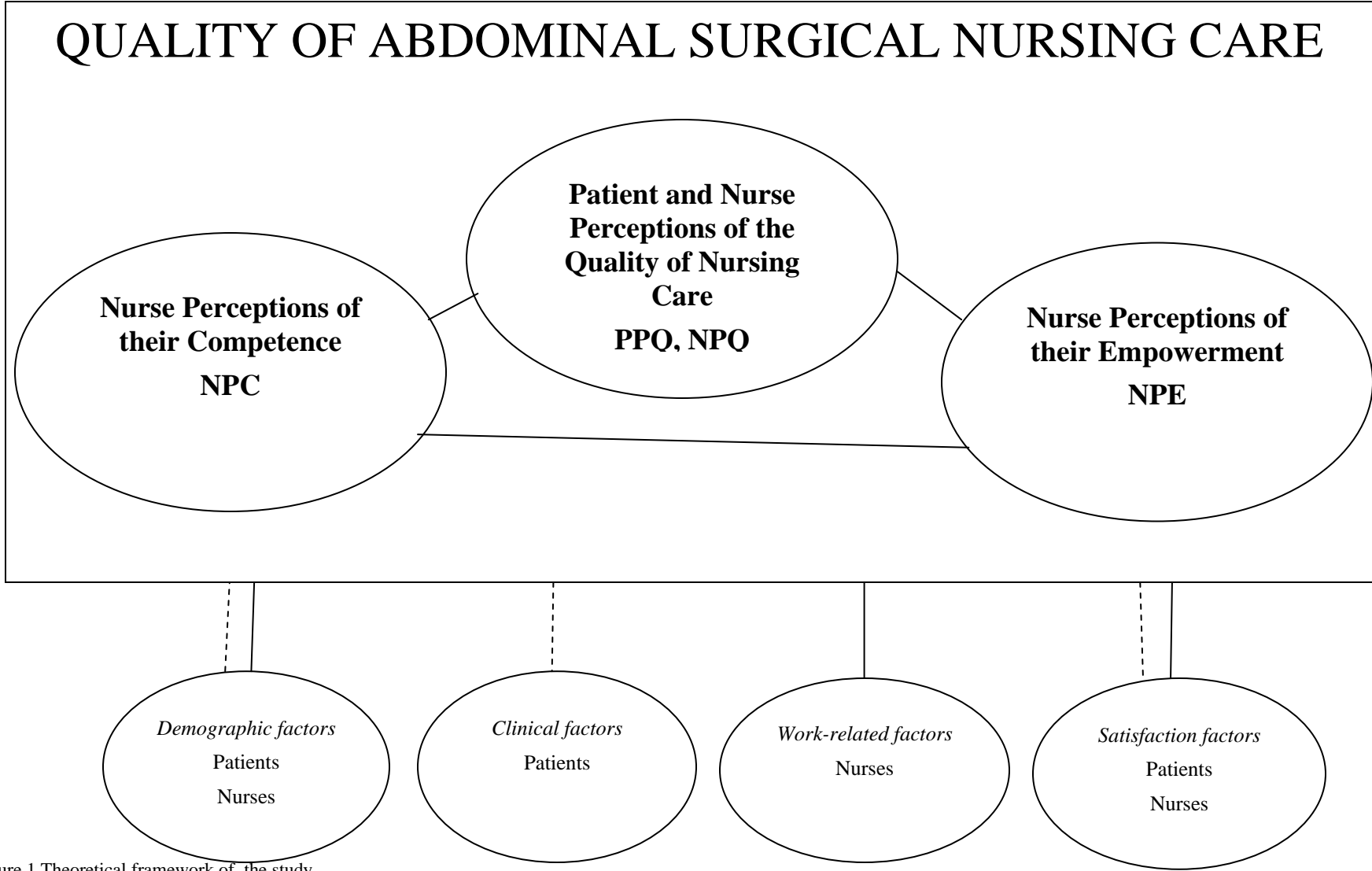


Figure 1 Theoretical framework of the study
 - - - - Correlation between the patient background factors and the quality of nursing care
 ——— Correlation between the nurse background factors and the quality of nursing care, correlation between PPQ, NPQ, NPC, NPE

3 PURPOSE OF THE STUDY

The purpose of the study was to evaluate the quality of abdominal surgical nursing care and the factors related to it as perceived by patients following abdominal operations and by surgical nurses. The knowledge gained from the study can be used for developing the quality of abdominal surgical nursing care; for practice and management; for nursing education; and for future nursing research.

There were three phases in the study (Table 1). In the empirical part of the study, the perceptions of patients and nurses, the relationships between them, and the background factors were tested (Figure 2). In the said phases, the following research questions were addressed:

1. What is the quality of abdominal surgical nursing care? (Papers I-IV, Summary)
 - 1.1. What are the patient (PPQ) and nurse (NPQ) perceptions of the quality of abdominal surgical nursing care? (Papers I-II)
 - 1.2. What are the differences and similarities between the patient (PPQ) and nurse (NPQ) perceptions of the quality of abdominal surgical nursing care? (Papers I-II)
 - 1.3. What are the nurse perceptions of their competence (NPC)? (Paper III)
 - 1.4. What are the nurse perceptions of their empowerment (NPE)? (Paper IV)
2. What factors are related to the quality of abdominal surgical nursing care? (Papers I- IV, Summary)
 - 2.1. What is the relationship between the background factors and the patient (PPQ) and nurse (NPQ) perceptions of the quality of nursing care, competence, (NPC) and empowerment (NPE)? (Papers I- IV, Summary)
 - 2.2. What is the relationship between the nurse perceptions of the quality of nursing care (NPQ), competence (NPC), and empowerment (NPE)? (Papers I- IV, Summary)

Table 1 Phases of the study

Phase of the study	Paper	Aims	Samples	Instruments	Data analysis
Phase 1 Descriptive 2003-2010	I	To analyze the methodological characteristics and the main findings of studies in the field of quality of abdominal surgical nursing care	Literature focused on the quality of abdominal surgical nursing care (n=17)	MEDLINE, CINAHL, and Cochrane databases Between beginning of databases and March, 2011	Content analysis
Phase 2 Instrument adaptation and psychometric evaluation 2003-2006	Summary	To adapt the instruments to Lithuanian conditions and to test their reliability and validity	Patients (n=80) Nurses (n=114)	Good Nursing Care Scale for Patients (GNCS-P) Good Nursing Care Scale for Nurses (GNCS-N) Nurse Competence Scale (NCS) Nurse Empowerment Scale (NES)	Descriptive statistics Content validity and reliability
Phase 3 Empirical 2006-2008	II	To evaluate and to compare patient and nurses' perceptions of the quality of abdominal surgical nursing care with a special interest in the role of significant others	Patients (n=1208) Nurses (n=218)	Good Nursing Care Scale for Patients (GNCS-P) Good Nursing Care Scale for Nurses (GNCS-N)	Power analysis for calculation sample size Descriptive statistics A principal axis factor analysis T-test Mann-Whitney <i>U</i> -test Validity and reliability Spearman test ANOVA
	III	To evaluate the competence of nurse and the factors related to it from the perspective of nurses working in abdominal surgical units	Nurses (n=218)	Nurse Competence Scale (NCS) Good Nursing Care Scale for Nurses (GNCS-N)	Power analysis for calculation sample size Descriptive statistics A principal axis factor analysis T-test Mann-Whitney <i>U</i> -test Validity and reliability Spearman test ANOVA
	IV	To evaluate the empowerment of nurse and the factors related to it from the perspective of nurses working in abdominal surgical units	Nurses (n=218)	Nurse Empowerment Scale (NES) Good Nursing Care Scale for Nurses (GNCS-N)	Power analysis for calculation sample size Descriptive statistics A principal axis factor analysis T-test Mann-Whitney <i>U</i> -test Validity and reliability Spearman test ANOVA
Summary 2010-2011	Summary	To evaluate the quality of abdominal surgical nursing care and factors related to it as perceived by patients following abdominal operations and surgical nurses	All data above	All data above	All data above and Multiple regression analysis

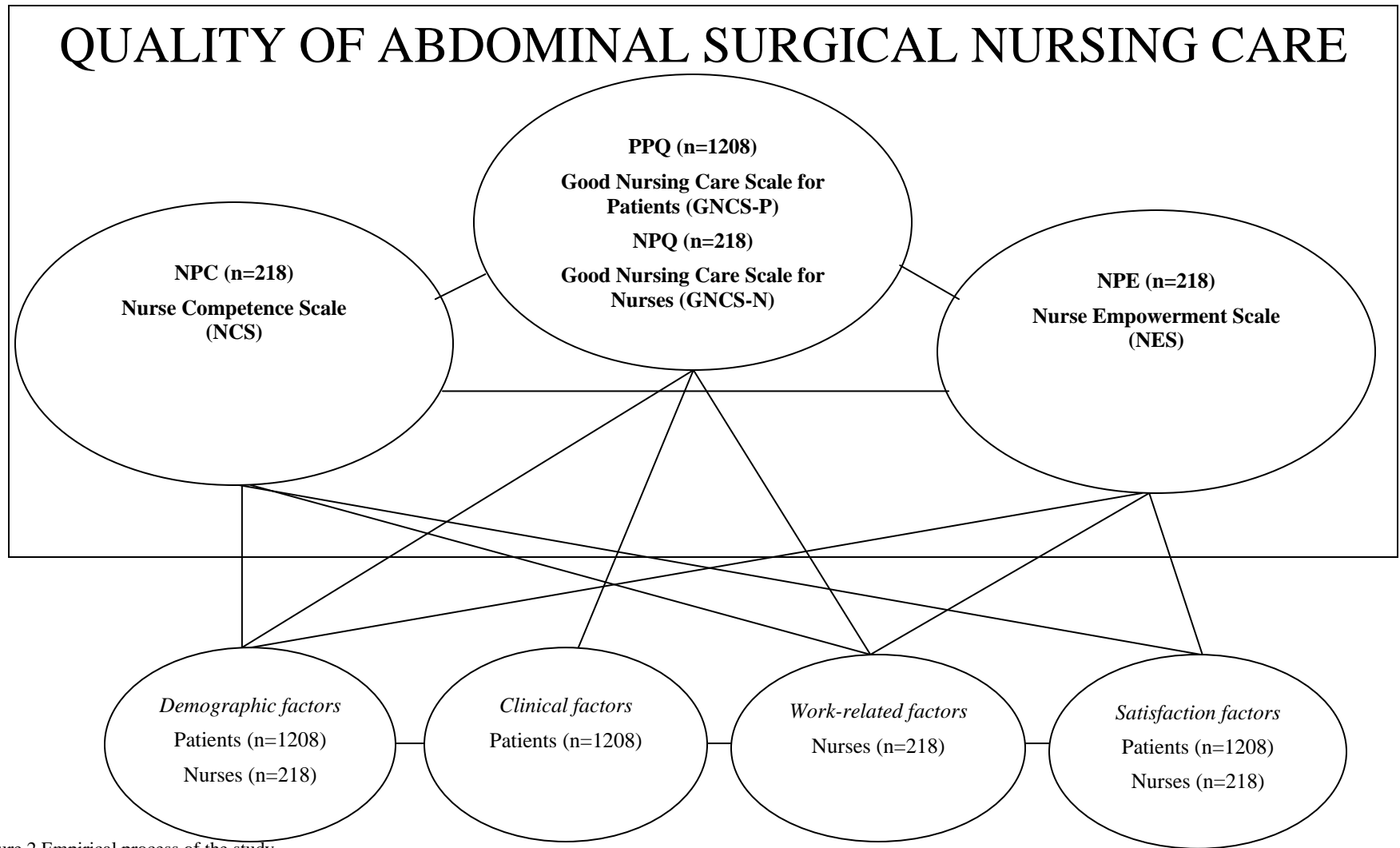


Figure 2 Empirical process of the study

— Tested relationship between the patient background factors and concepts

4 MATERIAL AND METHODS

4.1 Settings, sampling, data collection and sample

In the **first phase**, a scoping literature analysis was conducted in order to find the nursing research based on the quality of abdominal surgical nursing care, the factors associated with it, and what evidence it had produced about the quality of abdominal surgical nursing care. The focus in the scoping literature review was on the methodological characteristics and the main findings of the studies (n=17) based on the quality of abdominal surgical nursing care. The Medline, CINAHL, Cochrane Library, and PsycInfo databases were searched, covering the period from the beginning of those databases to December 2010, and using the search words *abdominal, surgical or perioperative, quality of nursing* in various combinations. The search produced a total of 161 articles. A scoping literature review consisted of the final sample of 17 articles (Paper I).

In the **second phase**, 9 largest Lithuanian hospitals were selected for the research. The head of one hospital did not give the permission for the research. The pilot data were collected in one purposively selected (Parahoo 2006) Lithuanian hospital in all 3 units of abdominal surgery during two months May-June, 2006, from the patients following abdominal operations (n=80) during their last day of hospitalization and surgical nurses (n=114) working in the same wards. The patients and nurses received a questionnaire and a covering letter from the researcher in an enclosed envelope. The data were collected from both groups at the same time. The response rate was 67 %, and 95 %, respectively. The data were analyzed to test the reliability and validity of the instruments.

The average age of the patients was 47 (the range from 22 to 75). The majority of them had secondary or post-secondary education (46%) and lived in the urban area (89 %) (Appendix 1). Most of the patients had had previous experiences of hospitalization (73 %). One-third of the patients suffered from pain before and after arrival to the operating theatre. About half of the patients had a fear of anesthesia and operation. The average age of the nurses was 37 (the range from 22 to 60). The average professional experience in the health care system of nurses was 16 years (the range from 1 to 40) and 13 years (the range from 1 to 16) in the current unit (Appendix 2).

In the **third phase**, 7 largest Lithuanian hospitals (one of the 9 hospitals was used for the pilot study, and one of the 9 hospitals did not permit to conduct the research) and 11 abdominal surgical units of those hospitals were involved in the research. The purposive sampling (Parahoo 2006) of postoperative patients (n=1208) during the last day of their hospitalization between June and November 2007 and surgical nurses (n=218) from the same units during November 2007 - January 2008 was selected. The selection criteria for patients were the age 18 or over, the ability to read, write and speak Lithuanian, having undergone elective or emergent abdominal surgery, being ready for voluntary participation, and being capable of participating in the study (their physical and mental health status was adequate). The patients filled in the questionnaires during the last day of their hospitalization after the operation. For calculating the sample size, power analysis

was used (PASS 2005). In total, about 2, 800 patients were hospitalized for abdominal surgical operation in Lithuania during the survey period. Approximately 57 % of all the patients who got abdominal surgical treatment at hospitals participated in the study. The nurses involved in the study were Lithuanian-speaking, having the qualification of a general practice registered nurse, taking care of patients after the elective or emergent abdominal surgery, and ready for voluntary participation. There were about 350 nurses in Lithuania working in abdominal surgery, and 63 % of them participated in the study.

The patients and nurses received a questionnaire and a covering letter from research assistants in an enclosed envelope during their last day of hospitalization before discharge. Before that, nurse managers of each ward asked the patient to participate and gave him oral information about the study (Paper II). After the patient data collection was finished, the nurse data collection started (Paper II-IV). The nurse data were collected later, with the goal of avoiding the possibility of improvement of the quality of nursing care during the survey and of getting objective and clear perceptions of nurses (Burns & Grove 2001; LoBiondo-Wood et al. 2006). The data collection process is described in more details in Figure 3. Only the questionnaires filled more than 90 percent were accepted for the analysis. The response rate for the patients was 74 %, and for the nurses 91 % (Parahoo 2006).

The age of the patients ranged from 18 to 91 (mean 47) (Appendix 1). Over half of them (60 %) were female, and 41 % had been admitted as emergency patients. The mean duration of the hospital stay was 8 days, ranging from 1 to 240 days. Half of the patients experienced previous surgeries, and 75 % had been hospitalized earlier. Before arriving to the operating theatre, over half of the patients (58 %) had suffered from pain, half had had a fear of surgery. During the surgery, 88 % of patients did not experience any pain, but after the operation, when they were taken to the ward, almost half of the patients (47%) suffered from pain again. Only 10 % of the patients felt a fear of surgery after the operation. Half of the patients were not satisfied with the health care system in Lithuania in general, however, 92 % were satisfied with health care in the current hospital, and 93 % were satisfied with the nursing care in the current hospital. Almost all the patients (95 %) had significant others, but only 74 % of them preferred to involve relatives in the health care of the patients.

The age of the nurses ranged from 22 to 62 (mean 39) (Appendix 2). The mean of professional experience in the health care system of nurses was 19 years (the range from 1 to 44) and 17 years (the range from 1 to 40) in the current abdominal surgical unit. Only 9 % of the nurses had graduated from universities. Almost all (90 %) of the nurses had participated in the clinical skills improvement course, and a large part of nurses had attended the course of upgrading the quality of perioperative care. Over half of the nurses (53 %) worked over the full-time workload at hospital. 64 % of nurses rated work independence, as well as the quality of abdominal nursing care in Lithuania, as low. Over half of the nurses (60 %) were satisfied with their work. A large part of nurses agreed that it was necessary to upgrade the quality of abdominal surgical nursing care in Lithuania and in their hospital (72 % and 70%, respectively).

4.2 Instruments

In the **first phase**, a literature review was conducted and the analysis of instruments used to measure the quality of nursing care was done.

In the **second phase**, three instruments (Appendix 3): Good Nursing Care Scale for Patients (GNCS-P, Leino-Kilpi et al. 1994), Good Nursing Care Scale for Nurses (GNCS-N, Leino-Kilpi et al. 1994), Nurse Competence Scale (NCS, Meretoja et al. 2004), and Nurse Empowerment Scale (NES, Kuokkanen et al. 2003), originally developed in Finland, were used to test their reliability and validity and were adapted and modified into the Lithuanian cultural context in accordance with the recommendations and requirements (Maneesriwongul & Dixon 2004; Parahoo 2006): first, they were translated by one of the researchers (NI) from English into Lithuanian, then, a back-translation procedure was performed, and finally, a monolingual test was conducted (Table 2). The instruments also included the patient and nurse background data. The scales were piloted with 80 patients and 114 nurses.

In the **third phase**, three instruments were adapted to the Lithuanian context: Good Nursing Care Scale for Patients (GNCS-P, Leino-Kilpi et al. 1994), Good Nursing Care Scale for Nurses (GNCS-N, Leino-Kilpi et al. 1994), Nurse Competence Scale (NCS, Meretoja et al. 2004), and Nurse Empowerment Scale (NES, Kuokkanen et al. 2003) were used to evaluate patients' perceptions of the quality of nursing care and nurses' perceptions of the quality of nursing care, competence, and empowerment (Table 2). The scales thus obtained the included background data items (items 1-10) different for the patients (demographic characteristics, clinical factors, and satisfaction factors) and for the nurses (demographic characteristics, work-related factors, and satisfaction factors) (Table 3). The background factors were upgraded for both patients and nurses after the second phase in accordance with the literature review and the results of the pilot study. The Lithuanian version of background factors was presented in Appendices 4 and 5. An open-ended question for the patients and for the nurses was included at the end of the questionnaires, so that the respondents could offer supplementary explanations. However, both patients and nurses left an empty space in that part of the questionnaire. There were only a few explanations, however, they offered no systematic information. Because of that, the free explanations were not analyzed.

Good Nursing Care Scale for Patients and Nurses (Paper II-IV)

The Good Nursing Care Scale for Patients (GNCS-P, Leino-Kilpi et al. 1994) and Good Nursing Care Scale for Nurses (GNCS-N, Leino-Kilpi et al. 1994) consisted of the same items for patients and nurses with a parallel structure of content:

Staff characteristics (items 10-23);

Care-related activities (items 24-42);

Preconditions for care (items 43-50);

Environment (items 51-52);

Progress of nursing process (items 53-62);

Cooperation with relatives/significant others (items 63-74).

Nurse Competence Scale (Paper III)

Nurses alone participated in the survey where the Nurse Competence Scale (NCS, Meretoja et al. 2004) was used. It consisted of:

Helping role (items 75-81);

Teaching-coaching (items 82-97);

Diagnostic functions (items 98-104);

Managing situations (items 105-112);

Therapeutic interventions (items 113-122);

Ensuring Quality (items 123-128);

Work role (items 129-147).

Nurse Empowerment Scale (Paper IV)

The Nurse Empowerment Scale (NES, Kuokkanen et al. 2003) consisted of

Qualities of empowered nurse (items 148-166);

Performance of an empowered nurse (items 167-185);

Empowerment promoting factors (items 186-203) and

Empowerment impeding factors (items 204-220).

GNCS-P and GNCS-N were arranged on a six-point Likert scale (1=never, 6=always); NCS was arranged in two ways: the level of competence was measured with a visual-analogue scale (VAS), with 0= a very low level of competence and 100 = a very high level of competence; the frequency with which the competencies were actually used in clinical practice was indicated on a four-point Likert scale (0 = not applicable, 1 = very seldom, 2 = occasionally, 3 = very often); and, finally, NES was arranged on a five-point Likert scale (1=“Does not apply to me at all”, 5=“Completely applies to me”). The principal component (PCA) and factor analysis was conducted to examine the instrument construct validity. The content of the instruments was described in Papers II-IV.

Table 2 Summary of the instruments

Instrument	Authors, year	Number of items	Answering scales
Good Nursing Care Scale for Patients (GNCS-P) Good Nursing Care Scale for Nurses (GNCS-N)	Leino-Kilpi et al. 1994	64	A six-point Likert scale 1=never, 2=very rarely 3=rarely, 4=often, 5=very often, 6=always
Nurse Competence Scale (NCS)	Meretoja et al. 2004	72	A visual-analogue scale (VAS) 0= a very low level of competence 100 = a very high level of competence A four-point Likert scale 0 = not applicable, 1 = very seldom, 2 = occasionally, 3 = very often
Nurse Empowerment Scale (NES)	Kuokkanen et al. 2003	72	A five-point Likert scale 1="Does not apply to me at all" 5="Completely applies to me"

Table 3 Background factors for patients and nurses

Categories of background factors	Patients	Nurses	Sources
Demographic characteristics	age, gender, education, place of residence, marital status	age, marital status, education, type of licence, professional experience, professional development (courses attended during the last 5 years)	See chapter 2.2.1
Work-related factors		workload in that hospital, the level of independence at work, the level of current knowledge of quality assurance, the level of current knowledge of the quality of abdominal surgical nursing care generally in Lithuania, the level of current knowledge of the quality of abdominal surgical nursing in current hospital, the opinion about upgrading of quality	See chapter 2.2.1
Clinical factors	The type of current surgery, the type of anesthesia, the type of current hospitalization, the length of the current hospital stay, earlier hospitalizations, experience of the surgery general condition and experiences before and after arriving at the operation theatre and in the unit: pain, nausea, cold, fear of anesthesia, fear of surgery, experience of complications during the current hospitalization (patient safety): medication errors, nosocomial infections, bedsores, falls		See chapter 2.2.1
Satisfaction factors	The level of satisfaction with the health care system in Lithuania, the level of satisfaction with the attendance and health care in that hospital during the current hospitalization, the level of satisfaction with the medical treatment during the current hospitalization, the level of satisfaction with nursing care during the current hospitalization	The level of satisfaction with work	See chapter 2.2.1

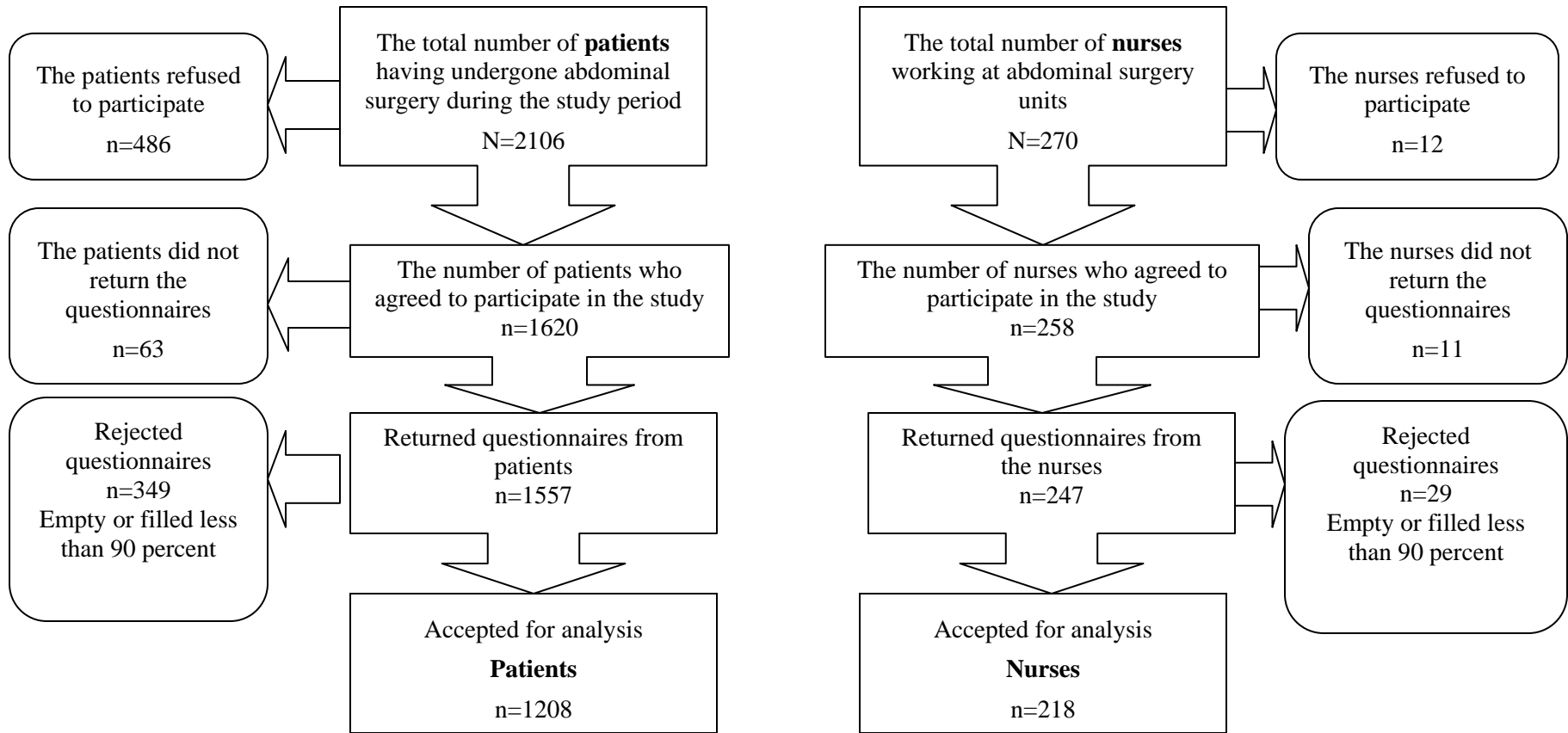


Figure 3 The data collection process in the empirical part of the study

4.4 Data analysis

In the **first phase**, the inductive content analysis of the included studies was used to analyze and synthesize the content of the articles (Polit & Hungler 1999, Arksey & O'Malley 2005; Davis et al. 2009). A scoping review was conducted of the final sample of 17 articles (Paper I). The criteria for the exclusion and inclusion of the studies were based not on the quality of the studies, but rather on their relevance (Arksey & O'Malley 2005). Content analysis was used as a method for making replicable and valid inferences from the data to their context with the purpose of providing knowledge, new insights, representation of facts, and a practical guide to action (Krippendorff 1980). The text of studies (n=17) was divided into the units of meaning (idea categories), and they were quantified in accordance with specific rules (Burns & Grove 2001). The process included open coding, creating categories, and abstraction (Graneheim & Lundman 2004). All the data from the included studies were charted, and the themes and key issues were identified. The data were extracted onto a standardized form: authors, year, country, study purposes, sample, research design, instruments, data analysis, validity and reliability, study findings, and comments (Burns & Grove 2001). The research findings were summarized and disseminated; the gaps in the existing research literature were identified (Arksey & O'Malley 2005) (Paper I).

In the **second phase**, the validity and reliability of the instruments were analyzed statistically by means of the Statistical Package for Social Sciences for Windows (SPSS, version 12.0; SPSS Inc., Chicago, IL, USA) and described by using frequency tables and descriptive statistics (Munro 2001; Bowling 2004; Parahoo 2006) (Summary).

In the **third phase**, statistical methods were used for analyzing the structured data. Statistical analyses were performed by using Statistical Package for Social Sciences for Windows (SPSS, version 12.0; SPSS Inc., Chicago, IL, USA). After collecting and analyzing the pilot data, the power analysis was used (PASS 2005) for calculating the sample size (Bowling 2004). A minimum necessary group size based on the consideration, however, ensured that a mean group difference δ can be detected at the significance level 0.05 with a statistical power of 0.8. All of the calculations were based on the fact that the maximum number of categories in the background variables was five. The comparing of means of the scale variables between 5 levels with one-way ANOVA to get 0,5 differences of group means (SD=0.5 within groups), when the difference between groups was at the 0.05 level of statistical significance, was done. Hence $5 \times 28 = 140$ observations would be needed. To obtain average scores for the all scales, the variables scales data for each group nurse and patient were summed up, and the result divided by the number of the items. The higher the average score, the more an individual nurse was willing to perform nursing activities for a patient. The distribution of the average scores was evaluated by means of the Kolmogorov–Smirnov test, which indicated a non-normal distribution of the average scores. Associations between the background variables and their average score on all scales were tested by means of a non-parametric Mann–Whitney U-test or a Kruskal–Wallis test (with post hoc tests). Pearsons' product moment correlation coefficients were used to examine the correlations between the scales and the numerical background variables. In addition, Spearman's

correlation coefficients were calculated to examine the relationships among continuous variables. In order to evaluate the significance of the association between the categorical variables, the χ^2 test was used. The association between the nurses' dichotomous background variables and their average scores on the scales was tested by means of the Student's t-test for the normally distributed scores and a non-parametric Mann–Whitney U-test for the non-normally distributed scores. The categorical background variables and the scores were tested with a one-way analysis ANOVA with Tukey's honestly significant difference test if equal variances assumed and with Tamhane's T2 test, if equal variances not assumed. The non-normally distributed scores were analyzed with the Kruskal–Wallis test and post-hoc analyses. The association between the numerical background variables and the scale scores was tested with the Spearman correlation. In all the tests, p-values < 0.05 were interpreted as statistically significant.

Next, logistic regression models (Binary & Multinomial) were used to examine the relationship between the quality of nursing care and background factors in the patient and nurse data. The Backward Elimination (Likelihood Ratio) method was used. Backward stepwise selection was done. Removal testing was based on the probability of the likelihood-ratio statistic based on the maximum partial likelihood estimates. Coefficient OR (estimated odds ratio (exp(B))) was evaluated (Munro 2001; Bowling 2004). Demographic variables were described by frequencies and percentages (Burns & Grove 2001; Munro 2001; Bowling 2004, Parahoo 2006).

4.5 Ethical considerations

The research adhered to the general principles of research ethics in all phases of the study (Burn & Grove 2001; Polit et al. 2001; Parahoo 2006), and all ethical standards for research were observed in accordance with international and national requirements (World Medical Association Declaration of Helsinki 2004; Lithuanian Bioethical Committee 2005). There were no vulnerable subjects involved in the study.

In the **first phase**, the scoping literature review was done. The principles of equality and justice were respected. The bias in the process of selection of the literature was avoided. All the articles based on the inclusion criteria were analyzed. The protocol was followed.

In the **second phase**, the permission to carry out the research was obtained from the head physician of the hospital and the Lithuanian Bioethical Committee (permission Number 13, date of delivery 24 March 2006) in accordance with the Lithuanian Law on Ethics of Biomedical Research No VIII-1679, 2005). Permissions to use and modify the instruments in the study were obtained from the authors (Leino-Kilpi 15 Jun 2005, Meretoja 05 Nov 2005, Kuokkanen 10 Jan 2006).

The patients and nurses received oral information and more detailed written information about the study in a covering letter before the survey. (Appendices 4, 5). All ethical principles were based on the respect of the researcher for all potential participants; on protecting participants with impaired decision-making capacity, and on maintaining confidentiality (Hulley et al. 2001).

In the **third phase**, the permission to carry out the research was granted by the Lithuanian Bioethical Committee (permission Number 13, date of delivery 24 March 2006) in accordance with the Lithuanian Law on Ethics of Biomedical Research No VIII-1679, 2005) and the head physicians of 7 hospitals (Paper II-IV). The permissions to use and adapt the instruments in the study were obtained from the authors (Leino-Kilpi 15 Jun 2005, Meretoja 05 Nov 2005, Kuokkanen 10 Jan 2006). The permission to publish the shortened items of GNCS-P, GNCS-N, NCS, NES to describe the dimensionality, reliability, and construct validity of instruments were received from their authors (Leino-Kilpi, 28 April 2011; Kuokkanen 3 May 2011; Meretoja 9 May 2011). The permission was received only for the publishing in the present form and for the use in the present thesis.

All ethical standards of the research were observed: anonymity, voluntary participation, respect for human dignity, right to self-determination, right to full disclosure, and right to refuse to participate were guaranteed to participants (Polit & Hugler 1999; World Medical Association Declaration of Helsinki 2004; Parahoo 2006). Prior to the data collection in the wards (Paper II-IV), the researcher provided oral and written information to the head nurses of the units to explain the study and discuss the participation of patients and staff nurses. At the same time, that made it possible to assure the willingness of the head nurses to assist with data collection. There was one research assistant responsible for the data collection in each hospital. The research assistant submitted envelopes with a covering letter giving more detailed information about the study (Appendices 4, 5) and questionnaires personally to the patients and nurses who had agreed to participate in the study. Anonymous questionnaires were returned in sealed envelopes, and only the researcher had access to the data. Each questionnaire was coded by the researcher exclusively for statistical analysis. The researcher contacted each research assistant several times during the data collection process to make sure that the research was progressing without any ethical problems.

The data were first collected from the patients (Paper II) and, after the patient data collection was finished, the data were collected from the nurses (Papers II-IV). The nurse data were collected later, with the goal of avoiding the possibility of improvement of the quality of nursing care during the survey and of getting objective and clear perceptions of nurses (Burns & Grove 2001). Written and oral information was provided to make sure that both the patients and nurses were aware of the purpose of this study. The oral informed consent, essential for the conducting of ethical research, was given to participants (Burn & Grove 2001). The privacy and anonymity of the participants was protected throughout the research process. The consent was assumed to be given by the return of the completed questionnaires (Polit & Hungler 2001).

5 RESULTS

The results of the study were reported in two parts in accordance with the research questions formulated above in Chapter 3. In the first part, the focus is on the evaluation of the quality of abdominal surgical nursing care including patient and nurses' perceptions of the quality and nurses' perceptions of their competence and empowerment (Papers I-IV). In the second part, the focus is on the factors related to the quality of abdominal surgical nursing care including the correlation between PPQ, NPQ, NPC, NPE and the background variables and the correlations between NPQ, NPC, NPE (Papers II-IV). Only statistically significant results were reported.

5.1 Evaluation of the quality of abdominal surgical nursing care

The quality of abdominal surgical nursing care was evaluated as a complex of patient and nurse perceptions of the quality of nursing care and nurse perceptions of their competence and empowerment (Paper I-IV). Next, the results were presented in four parts: patient and nurse perceptions of the quality (PPQ, NPQ), the comparison between the perceptions of patients (PPQ) and nurses (PNQ), and nurse perceptions of their competence (NPC) and of their empowerment (NPE).

5.1.1 Patient and nurse perceptions of the quality of nursing care

Patient perceptions of the quality of nursing care

In the **first phase**, the literature review revealed that patients' perceptions were significant for the evaluation of the quality of surgical nursing care. The total sample was 6,836 patients (range 96-1470, mean 570). In the analyzed articles, the descriptive and comparative study design was used most frequently. The patient perceptions of the quality of nursing care have mostly been measured by means of the patient satisfaction scales. The patients preferred to receive a sufficient amount of information before and after the surgery, to be able to take care of themselves at home with the help of their relatives. From the patients' view, the role of significant others in the process of nursing care was important and should be expanded. The analyzed articles had explored different aspects of the quality of nursing care from the viewpoints of patients having undergone surgery, but there was a shortage of studies describing patient perceptions of the quality of abdominal surgical nursing care (Paper I).

In the **second phase**, the results supported the previous use of GNCS-P and proved that it could be useful for Lithuanian abdominal surgical patients (Summary).

In the **third phase**, PPQ (n=1208) were positive. The highest assessments were given to the staff characteristics (mean 5.44, range 1-6) and the environment (mean 5.36, range 1-6) of the hospitals. The patients gave the lowest assessments to the quality of the progress of the nursing process (mean 4.45, range 1-6) and to the co-operation with significant others (mean 4.55, range 1-6) (Paper II). No differences were found in the perceptions of males and females. The patients with university education and secondary

school education were more positive in their perceptions, as well as senior patients and elective patients.

Nurse perceptions of the quality of nursing care

In the **first phase**, the total sample of nurses was 32,011 (range 24-10319, mean 2910). The perceptions of staff nurses and nurse managers were analyzed. Structured, earlier developed and modified scales based on the conceptualization of care quality from the nurses' perspective were frequently used. The findings from the scoping literature review witnessed that nurses tended to give high assessments to the quality of abdominal surgical nursing care; however, in the issues of quality, they were usually more critical than patients. Still, in some studies (e.g. Al-Kandari & Ogundeyin 1998, Zhao et al. 2008), the nurses evaluated the quality of nursing care higher than the patients. Some cultural peculiarities may have effected the perceptions of the nurses, as well as their self-confidence, competence, and empowerment. The nursing process and activities were the key elements for the evaluation of the quality of nursing care in the studies from the nurse perspective (Paper I).

In the **second phase**, the results showed that GNCS-N could be useful in the evaluation of the quality as perceived by surgical nurses (Summary).

In the **third phase**, the nurse perceptions of the quality of nursing care (n=218) were in general positive. The nurses gave the highest assessment to the quality of the environment (mean 5.20, range 1-6) and to the preconditions for nursing care (mean 4.93, range 2.25-6), such as staff knowledge, skills, competence, shortage of time, professional experience, and the calling for profession. The co-operation with significant others (mean 4.25, range 1-6) and the progress of the nursing process (mean 4.35, range 1-6) were rated the lowest (Paper II). The nurses who were more positive about the quality of nursing care were younger and more educated. The nurses who were more independent and satisfied with job were more critical in their perceptions.

5.1.2 Comparison between patient and nurse perceptions of the quality of nursing care

In the **first phase**, the comparison between the patient and nurse perceptions was analyzed. The patients as a sample was chosen more often in the studies, but the sample size of nurses was bigger (patient sample mean 570, nurse sample mean 938). The combination of some instruments was often used for the measuring of the quality of nursing care. The statistical data analysis was done almost in all studies. The scoping review showed that the quality of nursing care should be evaluated not only as perceived by the patient; the nurses as key persons had to be involved in the process as well. Both patient and nurse perceptions should be evaluated together and compared for a better understanding of quality measurement and upgrading. The instruments for measurement of the quality of nursing care could be classified into three groups: patients' perceptions of the quality of nursing care (mostly satisfaction scales), nurses' perceptions of the quality of nursing care (the scales based on the conceptualization of care quality from the nurses' perspective), and the scales developed with both the patient and nurse

contribution and measuring the patient and nurses' perceptions. The patients tended to evaluate the quality of nursing care higher than the nurses, but the patient satisfaction was mostly a measurable outcome and a quality indicator. However, it depended on the patients' previous experience and expectations. The nurses were more critical of themselves and tended to give lower assessments in comparison with the patients; however, their perceptions may have been affected by several factors (Paper I).

In the **second phase**, the results showed that both instruments were preferred for the testing of the patient and nurse perceptions in Lithuania (Summary).

In the **third phase**, the overall scores of both PPQ and NPQ were high with more critical NPQ. Significant differences ($p < 0.001$) were identified between the patients and the nurses. The patients gave higher assessments to the quality in the staff characteristics and environment, and the nurses to the quality of the environment and the preconditions for nursing care. However, both the patients and nurses were critical about the quality in the co-operation with significant others and the progress of nursing care (Paper II).

5.1.3 Nurse perceptions of their competence

In the **first phase**, the literature review results demonstrated that nurses tended to evaluate their competence positively, but the evaluation may have been impacted by some factors. From the nurses' view, the nurse competence was associated with nursing education, working place, working experience, and nurse position. As perceived by nurses, high competence of nurse could significantly improve the quality of nursing care (Paper I, III).

In the **second phase**, the NCS was evaluated as a useful instrument to evaluate Lithuanian surgical nurse perceptions of their competence (Summary).

In the **third phase**, NPC were not on a high level, however, not on a low one, either (mean 72.2, range 0-100). Almost one third of the nurses assessed their level of competence as not very high. Still, the nurses indicated that they frequently used their competencies in the clinical practice (85.8 %). The competence category of Ensuring Quality was assessed the lowest (mean 68.7, range 0-100), as well as teaching-coaching (mean 68.0, range 0-100) (Paper III).

The nurses most competent in the Ensuring Quality gave high assessments to the quality in supporting initiative, caring, encouragement, preconditions, and co-operation with relatives. The nurses who frequently used Teaching-Coaching competencies in practice highly rated the quality in supportive initiative, caring, and preconditions. However, the estimated correlation was low or moderate ($r = 0.249 - 0.351$, $p < 0.01$). In summary, the nurses who perceived their competence in a more positive way were also more positive in their perceptions of the quality of abdominal surgical nursing care (Paper III).

5.1.4 Nurse perceptions of their empowerment

In the **first phase**, the literature review results showed that the nurse perceptions of their empowerment were positive. However, there was a lack in the clear defining of the nurse empowerment because of several reasons, including language issues and difficulties in the understanding of the concept. The staff nurse perceptions of their empowerment were analysed more often than nurse managers. The nurse empowerment was frequently used in relation to the quality of nursing care, but the relationship was not clear (Paper I, IV).

In the **second phase**, the NES was evaluated as a useful instrument to evaluate Lithuanian surgical nurse perceptions of their empowerment (Summary).

In the **third phase**, the nurse perceptions were positive in the qualities (mean 3.99, range 1.00 – 5.00) and performance (mean 4.07, range 1.50 – 5.00) of an empowered nurse and empowerment promoting factors (mean 4.04, range 1.50 – 5.00), with the highest assessment in moral principles (mean 3.83, range 1.00 – 5.00) and sociability (mean 3.76 1.00 – 5.00), and the lowest in future-orientedness (mean 3.53, range 1.00 – 5.00) and expertise (mean 3.63, 1.00 – 5.00). The nurse perceptions were negative to the empowerment impeding factors (mean 2.53, range 1.00 – 5.00) (Paper IV). Independent and satisfied nurses with higher education had more positive perceptions about their empowerment.

The correlations between the nurse perceptions of the empowerment and the quality of abdominal surgical nursing care were estimated. However, the correlations were low or moderate. A positive correlation was identified between the performance of an empowered nurse and the quality of nursing care ($r=0.139 - 0.525$). The qualities of the preconditions of nursing care had a moderate correlation with the qualities ($r=0,508$) and performance ($r=0.525$) of an empowered nurse. A negative correlation was established between the empowerment impeding factors and NPQ ($r=-0.177- 0.024$) (Paper IV).

5.2 Factors related to the quality of abdominal surgical nursing care

The factors related to the quality of abdominal surgical nursing care were evaluated and presented in two parts: the background variables had statistically significant correlations with the patient perceptions of the quality of nursing care and the nurse perceptions of quality, competence, and empowerment; a statistically significant relationship was also established between the nurse perceptions of the quality of nursing care, competence, and empowerment.

5.2.1 Background variables related to the patient and nurse perceptions of the quality of nursing care, competence, and empowerment

In the **first phase**, the literature review results proved that the background factors related to the quality of nursing care may have positive or/and negative influence and could be divided into (1) patient characteristics; (2) nurse characteristics; and (3) organizational characteristics. Patients' variables, such as age, gender, education, marital status,

previous experience of surgery, patient expectations of the nursing care and other factors were important for the patients' perceptions of the quality of abdominal surgical nursing care. Nurses' variables, such as education, professional development, work experience, position, marital status, and job satisfaction were associated with the nurse perceptions of the quality of nursing care. The organizational characteristics, such as the type and level of hospital, the type of the unit, organizational support for the nursing practice, the proportion of nursing staff members, and an average number of patients per nurse were associated with the quality of nursing care in the analyzed studies (Paper I).

In the **third phase**, several background variables were related to the quality of abdominal surgical nursing care. In the patient data, the demographic factors and satisfaction factors and in the nurse data, demographic factors, work-related factors, and satisfaction factors were identified as related to the quality of nursing care (Paper II-IV, Summary). In Table 4, the summary of interrelations between some background factors and the quality of abdominal surgical nursing care were presented as the patient perceptions of the quality of nursing care and the nurse perceptions of the quality of nursing care, competence, and empowerment. Only statistically significant results and the highest results in each category of the instruments GNCS-P, GNCS-N, NCS, and NES were presented. However, correlations were only low or moderate ($r=0.163 - 0.451$, $p<0.01$).

Table 4 Correlations between the quality of abdominal surgical nursing care and the background factors of the patients (n=1208) and nurses (n=218), (Spearman's rho)

Background factors	Patients' perceptions n=1208 Quality	Nurses' perceptions n=218		
		quality	competence	empowerment
<i>Demographic factors</i>				
Age	.163**	-	-	-
Level of education	-	-	.176*	.189**
Courses for Professional Development	-	-	-.276**	-.162*
Type of licence	-	.213**	-	.187**
<i>Work-related factors</i>				
Workload	-	.233**	-	.166*
Work independence	-	-.331**	-.251**	.314**
Knowledge about general quality of nursing care in Lithuania	-	-.308**	-	-
Knowledge about quality in current hospital	-	-.310**	-	-
<i>Satisfaction factors</i>				
Satisfaction with health care	-.356**	-	-	-
Satisfaction with medical treatment	-.336**	-	-	-
Satisfaction with nursing care	-.379**	-	-	-
Work satisfaction	-	-.285**	-.217**	.451**

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

The correlation inside the patient background factors was estimated, and significant correlations were identified (Appendix 6). In the nurse data, there were no significant correlations. A strong correlation was established between the patient satisfaction with health care in the current hospital and satisfaction with treatment and nursing care

($r=0.680$ and $r=0.641$, $p<0.01$, retrospectively). A moderate correlation was found between the patient pain before surgery and their earlier experience of surgeries ($r=0.356$, $p<0.01$), the type of current hospitalization ($r=0.356$, $p<0.01$), and patient pain after the surgery ($r=0.327$, $p<0.01$) (Summary).

The patient demographic data, such as age and satisfaction factors, satisfaction with nursing care, satisfaction with the health care system in Lithuania, and satisfaction with medical treatment were particularly related to PPQ, with special relationship to the quality in staff characteristics ($r=-0.336$ - -0.379 , $p<0.01$). More satisfied patients evaluated the quality of nursing care lower than the less satisfied patients. A statistically significant, but low ($r=0.102$ - 0.286 , $p<0.01$) correlation was established between the quality of co-operation with significant others and several variables of patients and nurses (Paper II).

Demographic characteristics, work-related factors, and satisfaction factors were related to NPQ. The NPQ of nurse anaesthetists were higher in the evaluation of the qualities in co-operation with significant others ($r=0.213$, $p<0.01$), physical activities ($r=0.183$, $p<0.01$), and the environment ($r=0.182$, $p<0.01$). The operating theatre room NPQ were higher in the qualities of activities ($r=0.210$, $p<0.01$) than in nurses having other licenses. Nurse job independence, evaluation of the knowledge of the general quality of nursing care in Lithuania, the quality in the current hospital, and job satisfaction were related to NPQ with special relationship to the quality in the progress of the nursing process ($r=-0.285$ - -0.310 , $p<0.01$) and co-operation with significant others ($r=-0.331$, $p<0.01$). The established relationship was moderate, however, statistically significant ($p<0.01$). More satisfied and independent at work nurses were more critical in the evaluation of NPQ than the less satisfied and less independent ones (Paper II).

Demographic factors, such as the level of education, completed courses of professional development, and the type of nurse licence, and work-related factors, such as job independence and satisfaction, correlated with NPC. The nurses with a higher level of education (graduates of colleges or universities) higher assessed the frequency of using the Quality Ensuring competencies in practice ($r=0.176$, $p<0.05$) than nurses with a vocational level of education. NPC after completing the course of Nursing Ethics were more critical of their competence in general ($r=-0.225$ - -0.276 , $p<0.01$) than the nurses after completing other educational courses. Job independence ($r=-0.178$ - -0.251 , $p<0.01$) and nurse satisfaction ($r=-0.181$ - -0.217 , $p<0.01$) had a negative correlation with nurse perceptions of the categories of competence. However, the correlation was low, and the overall evaluation of competence correlated positively with independence and satisfaction (Paper III).

Demographic factors, such as the level of education, the completion of courses for professional development, and the type of a nurse license; work-related factors, such as workload and job independence; and nurse satisfaction were identified as the main factors related to the NPE. Some factors had a positive relationship, some other negative. The NPE of the nurses with a higher education level were higher in sociability ($r=0.189$, $p<0.01$) than that of the nurses with a secondary vocational level of education. The NPE

of the nurses who had a general practice nurse license were lower in the assessment of expertise in the qualities of an empowered nurse than that of the nurses who had operating theatre room or anesthesia nurse licenses. The NPE after attending the course of the Nursing Management were higher in the assessment of the performance of an empowered nurse and the empowerment promoting factors than NPE after attending other educational courses. The nurses working at hospital full-time or less were more critical in the evaluation of nurse empowerment than the nurses working more than full-time at the hospital. The NPE of the nurses with a higher level of job independence and job satisfaction were more positive about their empowerment than the less independent and less satisfied nurses (Paper IV).

The results of logistic regression (binary and multinomial) showed associations between the quality of nursing care and the background variables of patients and nurses, such as marital status, workload, job independence, nurse and patient satisfaction, and their experience of the quality of nursing care (Appendices 7-9). Higher evaluated staff characteristics, physical environment, human-oriented activities, and preconditions for nursing care tended to decrease the patient dissatisfaction (OR=0.12-0.61, $p<0.05$) (Appendix 7). However, nurse attitudes of respect and caring tended to increase patients' dissatisfaction with nursing care (OR=2.63, $p=0.012$ and OR=2.48, $p=0.018$, respectively) (Summary).

The associations between the quality of nursing care, the nurse marital status, and the workload at the current hospital were identified (Appendix 8). The married nurses assessed the quality in the progress of the nursing process (OR=0.64, $p=0.032$), the expertise of qualities of empowered nurse (OR=0.47, $p=0.024$), and the sociability in the performance of empowered nurse (OR=1.97, $p=0.014$) higher than the single nurses. The nurses who worked at hospital full time and over assessed the quality of the environment (OR=2.03, $p<0.001$) and performance of empowered nurse (OR=5.28, $p=0.001$) higher than the nurses who worked at hospital less than full time (Appendix 8). The associations between the quality of nursing care and nurse satisfaction and independence at work were also identified. The very satisfied with work nurses evaluated the quality in the progress of nursing care (OR=11.84, $p=0.05$) and preconditions for nursing care (OR=78.92, $p=0.011$) higher than the unsatisfied nurses. The nurses who were not independent at work did not tend to cooperate with patients' relatives (OR=2.11, $p=0.026$), and the nurses with higher evaluation of family participation in the nursing care process tended to feel more independent at work (OR=10.79, $p=0.034$) than the nurses who evaluated the relative participation in the nursing care process as unnecessary (Appendix 9, Summary).

5.2.2 Correlations between nurse perceptions of the quality of nursing care, competence, and empowerment

In the **first phase**, the literature review results showed that a correlation between the nurse perceptions of the quality of nursing care, competence, and empowerment of nurse was established (Paper III, IV, Summary). The associations between the nurse perceptions of the quality of nursing care and nurse competence (Paper III), as well as the

associations between the nurse perceptions of the quality of nursing care and nurse empowerment (Paper IV), were positive.

In the **second phase**, the correlation between the quality of nursing care, competence, and empowerment was not estimated because of the different purpose of the phase.

In the **third phase**, the connection between the NPQ, NPC, and NPE was identified, and all the correlations were positive (Table 5). The nurses who were competent in their work role were also more empowered at their work and higher evaluated the quality in preconditions ($r=0.367$, $p<0.01$) and task-oriented activities ($r=0.343$, $p<0.01$) than the nurses who rated their competence lower. The nurses competent in the helping role higher assessed the quality of abdominal surgical nursing care in general ($r=0.330 - 460$, $p<0.01$) as compared to the nurses who were less competent in the helping role, with the highest evaluation of quality in the preconditions for nursing care ($r=460$, $p<0.01$). The more competent and empowered nurses evaluated the preconditions for nursing care ($r=0.245-0.460$, $p<0.01$) higher than the less competent and empowered nurses. In the relationship between the NPC and NPE, the strongest correlation was established between the empowerment in the sociability and all categories of competence ($r=0.281 - 0.425$, $p<0.01$) and between the competence in the work role and all categories of empowerment ($r=0.273 - 454$, $p<0.01$). However, the established correlations were only moderate ($r=0.3-0.5$) (Summary).

Table 5. Correlations between nurse perceptions of the quality of nursing care, competence, and empowerment (Spearman's rho)

	NPC						NPQ							NPE				
	Man-aging situations	Diagnos-tic functions	Work role	Teaching - coaching	Therapeu-tic interventions	Ensuring quality	Staff character-istics	Task – oriented activities	Human oriented activities	Precondit-ions	Progress of nursing process	Environ-ment	Cooperat-ion with relatives	Moral princ-iples	Personal integrity	Expertise	Future-orientedness	Sociabi-lity
Helping role	.542**	.585**	.598**	.664**	.510**	.615**	.330**	.450**	.417**	.460**	.368**	.376**	.413**	.169*	.255**	.328**	.231**	.294**
Managing situations		.556**	.604**	.461**	.628**	.549**	.093	.309**	.274**	.269**	.154*	.254**	.315**	.171*	.188**	.255**	.144*	.281**
Diagnostic functions			.625**	.688**	.607**	.626**	.217**	.338**	.245**	.321**	.282**	.248**	.323**	.119	.261**	.325**	.228**	.323**
Work role				.667**	.599**	.728**	.229**	.343**	.279**	.367**	.291**	.244**	.328**	.273**	.423**	.454**	.366**	.425**
Teaching-coaching					.528**	.639**	.213**	.343**	.244**	.351**	.269**	.240**	.267**	.095	.272**	.323**	.294**	.321**
Therapeutic interventions						.614**	.152*	.276**	.253**	.289**	.274**	.296**	.303**	.210**	.163*	.310**	.250**	.330**
Ensuring quality							.178**	.306**	.271**	.328**	.225**	.216**	.269**	.138*	.211**	.292**	.243**	.296**
Staff characteristics								.481**	.431**	.422**	.469**	.305**	.406**	.264**	.340**	.335**	.302**	.304**
Task – oriented activities									.653**	.621**	.552**	.426**	.636**	.167*	.326**	.411**	.300**	.320**
Human – oriented activities										.612**	.483**	.425**	.519**	.237**	.319**	.343**	.290**	.314**
Preconditions											.545**	.517**	.554**	.245**	.359**	.458**	.404**	.426**
Progress of nursing process												.396**	.654**	.225**	.306**	.341**	.269**	.310**
Environment													.473**	.197**	.211**	.354**	.231**	.276**
Cooperation with relatives														.313**	.293**	.367**	.251**	.400**
Moral principles															.566**	.485**	.493**	.528**
Personal integrity																.749**	.712**	.689**
Expertise																	.794**	.778**
Future orientedness																		.736**

**Correlation is significant at the 0.01 level (2-tailed);

*Correlation is significant at the 0.05 level (2-tailed).

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5.3 Summary of the results

In the **first phase**, the literature review results showed that the quality of abdominal surgical nursing care was not clearly defined and described in the previous literature in accordance with the special needs and unique situations of patients having undergone abdominal surgery. Several factors, such as patient, nurse, and organizational characteristics were related to the quality of nursing care either positively or/and negatively (Paper I, Summary).

In the **second phase**, the pilot data were analyzed statistically, and the instruments GNCS-P, GNCS-N, NCS, and NES were tested. The validity and reliability of those three instruments altogether were confirmed for the use in the Lithuanian population (Summary).

In the **third phase**, the quality of abdominal surgical nursing care and the factors related to it were evaluated. The patient perceptions were evaluated higher than those of the nurses, but the differences were not great. A positive significant correlation between the nurse perceptions of the quality of nursing care, their competence, and empowerment was identified. Several positive and negative correlations with the background factors were evaluated (Paper II-IV, Summary).

The highest and lowest evaluations of the patient and nurse perceptions are presented in Figure 4. The demographic and satisfaction factors of both the patients and nurses were related to the quality of abdominal surgical nursing care, as well as to the work-related factors (nurse factors). The relationship between the patient clinical factors and the quality of abdominal surgical nursing care was not estimated.

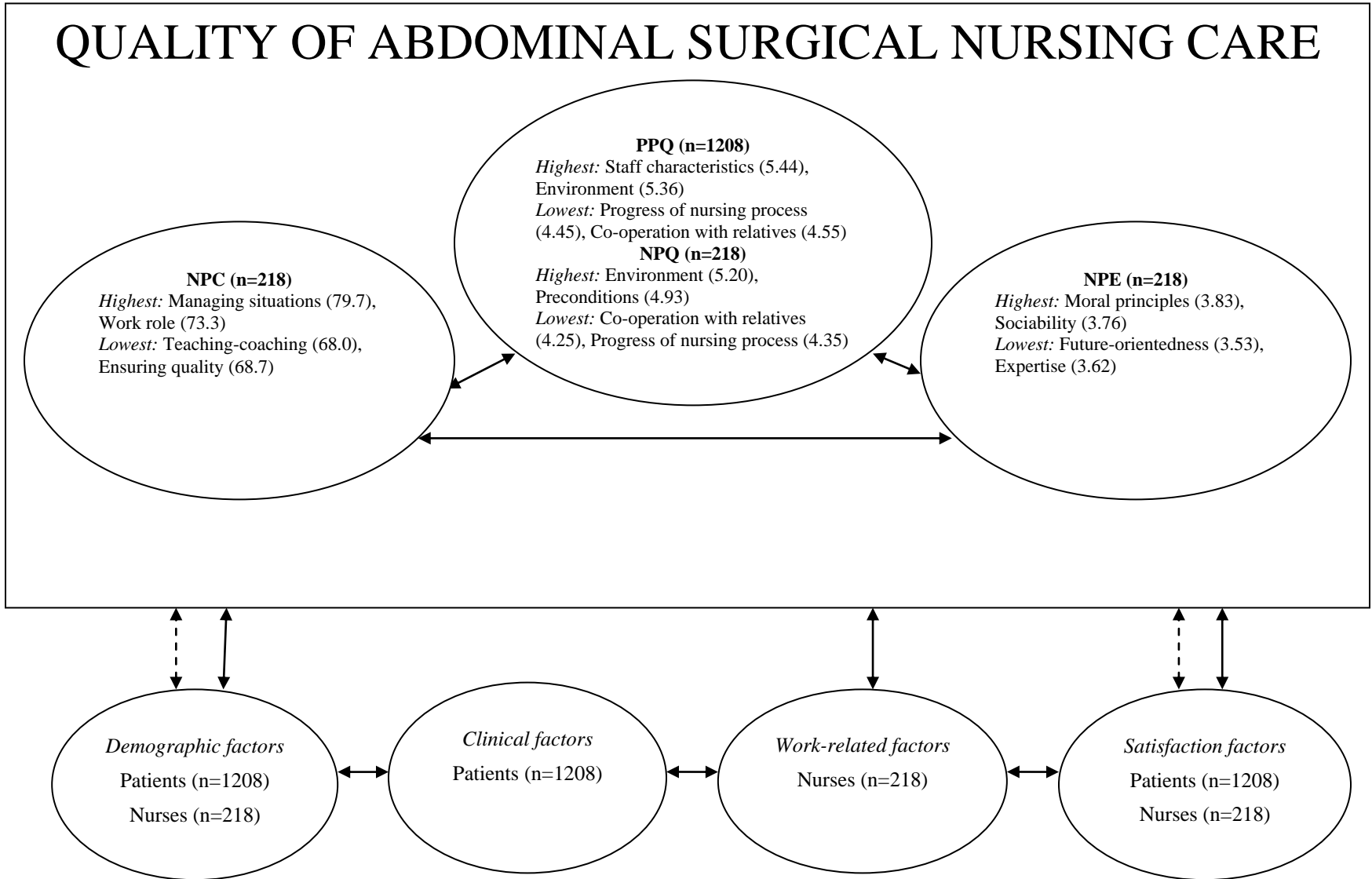


Figure 4 Summary of the results

- ◄ - - - ► Correlation between the patient background factors and the quality of abdominal surgical nursing care
- ◄ = = = ► Correlation between the nurse perceptions of quality of nursing care, competence, and empowerment; correlation between the nurse background factors and the quality of abdominal surgical nursing care

6 DISCUSSION

The purpose of the study was to evaluate the quality of abdominal surgical nursing care and the factors related to it as perceived by patients following abdominal operations and surgical nurses. The literature review showed a lack of research in the quality of abdominal surgical nursing, highlighting the need for analysis and evaluation of the quality of nursing care in abdominal surgical settings.

In the present chapter, the validity and reliability of the study are discussed. The main findings are discussed in relation to the earlier literature in compliance with the purpose of the study. The conclusions and implications for nursing practice, management, and nursing education are considered. Some suggestions for future research are presented.

6.1 Validity and reliability of the study

The adequacy of the study process was examined by assessing the validity and reliability of the results and discussed under three separate sections, focusing on the validity and reliability of the data, the research process, and the instruments used.

The concept of validity reflects the accuracy with which the findings reflect the phenomenon being studied (Parahoo 2006). Moreover, validity is the measure of truthfulness and accuracy of the study in relation to the concept under research, while reliability refers to the quality of the measurement estimating consistency, stability, and repeatability of the measure obtained (Polit & Hungler 1999; Burns & Grove 2001). Assessment of validity thus explores how successfully the study under review avoided bias and confounding. Determining the validity of a study helps determine whether one can trust the information presented in the study results (Jones 2010).

6.1.1 Validity and reliability of the data

In the **first phase**, the literature review was conducted in the databases MEDLINE (1966 – 2011), CINAHL (1982 – 2011), Cochrane Library (1972 – 2011), and PsycINFO (1861 – 2011). The chosen databases were the most comprehensive and useful ones for nurse researchers (Evans 2001; Subirana et al. 2005; Flemming et al. 2006). However, it is possible that some relevant articles remained undetected. The description of the quality of nursing care was based on a specific abdominal surgical perspective, and some of the studies reviewed were not directly concerned with the quality of abdominal surgical nursing care, however, they covered a number of related topics. That made it difficult to classify the articles as belonging to a specific definition and factors. However, the analyzed studies were primary research reports that approached the issue from the surgical patient and nurses' viewpoint and that were thus considered necessary in order to summarize the existing knowledge (Polit & Beck 2006). The scoping review clearly supported the need to study the quality of abdominal surgical nursing care (Paper I).

In the **second phase**, purposive sampling was conducted. The numbers of the sample (the patient data, n=80; the nurse data, n=114) for a pilot study were representative (Polit & Hungler 1999), as well as the response rate (67% for the patients and 95% for the nurses)

(Burns & Grove 2001, Jones 2010). The validity and reliability of the instruments were evaluated; the sample size for the main data was calculated by Power analysis. The analysis done was based on GNCS-P and GNCS-N results.

In the **third phase**, purposive sampling was used. The data were collected from patients having undergone abdominal surgery and nurses working in the same wards who met the inclusion criteria (Paper II, III, IV) at 7 of 9 largest Lithuanian hospitals. One of 9 hospitals was selected for the pilot study, and one of 9 hospitals refused to give permission for the research. Because of that (not all hospitals where patients may have abdominal operations were included), it is possible that some relevant information was missed. The choice of hospitals reflected the use of abdominal surgical care in Lithuania. The sampling was concerned with sample selection in a manner that enhanced the generalizability of the results (Bowling 2004). The generalizability of research results improved in direct proportion to the size of the sample (Polit & Hungler 1999; Burns & Grove 2001). The response rate in both the patient and the nurse groups was calculated from the total number of the patients and nurses invited to participate in the study (Parahoo 2006). The numbers of the sample and response rates (74% for the patients and 91% for the nurses) were representative (Burns & Grove 2001, Jones 2010). However, 349 questionnaires (22 %) from the patient data and 29 questionnaires (12 %) from the nurse data were rejected because they were empty or filled less than 90 %. It should be noticed that the requirement of 90 % was high and was chosen with the goal to guarantee high quality of the data. However, the response rate gave a basis to generalize the perceptions of abdominal surgical patients and surgical nurses of the quality of nursing care in Lithuania.

6.1.2 Validity and reliability of the research process

In the **first phase**, the content analysis of 17 articles included in the scoping literature review was done. Inductive content analysis provided a broad picture of the content of the studies, although the methods did not necessarily capture all possible contents and details (Parahoo 2006). Research findings should be as trustworthy as possible, and the studies were evaluated in relation to the procedures used to generate the findings (Graneheim & Lundman 2004). Within the tradition of qualitative content analysis, the use of the concepts related to the quantitative tradition, such as validity, reliability, and generalizability, is still common and was used (Graneheim & Lundman 2004). Credibility deals with the focus of the research and refers to confidence in how well the data and processes of the analysis address the intended focus (Polit & Hungler 1999). Research findings were systematically analyzed and coded by categories. It is possible that some relevant articles were not included in the scoping review because of the selection criteria. The credibility of the research findings also dealt with how well the categories and themes covered the data, that is, no relevant data were inadvertently or systematically excluded or irrelevant included (Graneheim & Lundman 2004). The findings of the scoping review revealed a shortage of literature related to the quality of abdominal surgical nursing care. In reporting the results, the contents of different categories were described by references to subcategories and coded expressions. The differences and similarities within the codes and categories were analyzed in accordance with the context (Paper I).

In the **second** and **third phases**, the external validity and criterion-related validity of the research process was investigated. External validity was related to the generalizability of the research results to wider population of interest (Bowling 2004). The selected study design was appropriate to the purpose of the study, feasible given realistic constraints, and effective in reducing threats to validity (Burns & Grove 2001). The critical outcomes of the study were measured (Jones 2010). The data collection was conducted by means of structured questionnaires. A number of factors were responsible for errors in the measurement process (Burns & Grove 2001). The research environment was a clinical setting, therefore, it was easy to reach patients and nurses, and data collection was organized efficiently. However, the patients and nurses were not necessarily motivated to answer the questions if they had difficulty filling in the questionnaires because of some reasons and problems, such as complicated health status, poor skills of the Lithuanian language (in case of Lithuanian citizens of the Polish or Russian nationalities), or unwillingness to participate. Totally, 23 % (n=486) of all the patients and 4 % (n=12) of the nurses refused to participate in the study (Figure 3). It is possible that the perceptions of the patients and nurses who refused to participate in the study were significant for the evaluation of the quality of nursing care. Furthermore, the patients completed the self-administered questionnaire before they were discharged from hospital during their last day of hospitalization and some other persons such as other patients from the ward and significant others may have had an impact on their privacy. Moreover, it is possible that the patients in the hospital had been less critical than later at home (e.g. Leinonen 2002; Suhonen et al. 2005; McMurray et al. 2007). The patients' perceptions of the quality of nursing care follow-up may be probably not so positive.

The nurses completed the questionnaire during their work on duty, and the responses may thus have depended on the degree of privacy that the respondents had in completing their questionnaires (Burns & Grove 2001). Criterion-related validity was conducted as a way to compare the findings with the data collected on the same phenomenon by other methods (Parahoo 2006). The study findings were compared with the results of similar studies, and conclusions were drawn (Papers II, III, IV).

6.1.3 Validity and reliability of the instruments

The section discusses the validity and reliability of the instruments of the study (**the second and third phases**). The content validity of the instruments was conducted. Internal validity was referred to the properties of the measurement instrument (Bowling 2004). Examination of the construct validity determined whether the instrument actually measured the theoretical construct it purported to measure (Burns & Grove 2001). Construct validity examined the fit between the conceptual definitions of variables (Burns & Grove 2001). A number of reliability tests have been devised to find out the consistency with which questionnaires collect data (Burns & Grove 2001; Parahoo 2006). The items of the instruments were not published due to copyright (Appendix 3). Items of GNCS-P, GNCS-N, NCS, and NEP were presented in a shortened form (Appendices 11-22).

In the **second phase**, a pilot study was conducted to test the revised questionnaires with patients having undergone abdominal surgery and surgical nurses. The study participants were selected in the same way as the respondents for the main data. The instruments adaptation and psychometric evaluation was done. The three scales were translated from English to Lithuanian and double back translated (Table 6) (Maneesriwongul & Dixon 2004; Parahoo 2006).

Table 6 Process of adapting GNCS-P, GNCS-N, NCS, NES for using in the Lithuanian population

Actions	Performers
First translation from English to Lithuanian Evaluation of the conceptual and suitability equivalence	The author of the thesis (NI) Discussion in two groups: Master students of the Nursing science (10 people) and teachers of Nursing (10 people)
Obtaining of two back translations from Lithuanian to English	Two English language specialists
Comparing of the versions of back translations. Identification of items of doubtful equivalence. Achieving consensus on a version	Author of the thesis (NI), English language specialists
Investigation and translation panel analyzing	First, discussion in two groups: Nurse practitioners (20 people) and teachers of Nursing (7 people: 6 the same as in the first evaluation and 1 new person) Second, discussion with an English language specialist, the author of the thesis (NI), and supervisors
Pilot test for patients and nurses to check comprehension, clarity, and feasibility	The author of the thesis (NI), supervisors

There was no statistical test for the content validity, although an index of content validity could be calculated based on the degree of agreement of the panel members (Parahoo 2006). During the testing of the content validity of the instruments, the researcher was ensured that irrelevant questions were not asked. The face validity was conducted also in the study, as the extent to which the assessment instrument subjectively appeared to be measuring what it was supposed to measure (Redsell et al. 2004). The instruments were tested by the author's colleagues and Master students of the nursing science who reviewed and assessed the items and presented their comments (Parahoo 2006). In accordance with their comments, some formulations of the items were changed to be more understandable for patients and nurses. The Cronbach's alpha of the pilot results demonstrated the reliability of the instruments (Appendix 10). The lower Cronbach's alpha coefficients were estimated in two categories of GNSC: environment (0.352) and

the progress of nursing care in the sample of the nurses (0.363). The Cronbach's alpha of the environment category (0.352) was not adequate for the measurement and evaluation because of consisting of two items (Polit & Hungler 1999; DeVellis 2003a). The formulation of two items in the category of progress of the nursing process was revised because they were difficult to understand, probably due to the translation and back-translation processes. The items "I do not feel I had to wait too long before I was seen" and "I have not stayed too long in hospital for my recovery", were changed to the items "I feel I did not have to wait too long before I was seen" and "I have been allowed to stay on in hospital long enough for my recovery" in the Lithuanian language. The Cronbach's alpha coefficients in other categories were considered as acceptable (Polit & Hungler 1999; Burns & Grove 2001, Bowling 2004). In accordance with the results of the pilot study, the items of the NCS were left as in an original version, two items of the NES were combined into one, because of translation into the Lithuanian language (*progress* of work and *development* of work were combined to *development* of work). The background variables for patients and nurses were added.

The GNCS has been widely used nationally in Finland (e.g. Wasenius 2000, Luhtasela 2006, Ruotsalainen 2006), and further developed for perioperative purposes (Leinonen 2002) in Finland and Turkey (Donmez & Ozbayir 2010). Its modifications were also made for adult patients in Sweden (Rehnström et al. 2003) and China (Zhao et al. 2008), and for post-natal wards in Estonia (Kalam-Salminen et al. 2008). Recently, the theoretical basis of the instrument was used for the evaluation of the quality of pediatric nursing care (Pelander et al. 2004, Pelander 2008). The NCS has been also widely used nationally in Finland (Salonen et al. 2007) and internationally in Italy (Dellai et al. 2009) and Australia (Cowin et al. 2008). The NES has been widely used nationally in Finland (Kuokkanen et al. 2007, 2009; Rankinen et al. 2009; Suominen et al. 2011). The content validity of the instruments was supported in the previous studies.

In the **third phase**, the descriptive statistics (Appendices 11, 14, 17, 20), dimensionality (Appendices 12, 15, 18, 21), and reliability and construct validity (Appendices 13, 16, 19, 22) were conducted (Papers II, III, IV, Summary). The items of the instruments were published in an abridged, not original, version.

The means and standard deviations of items have shown acceptability of the GNCS-P (Appendix 11), GNCS-N (Appendix 14), NCS (Appendix 17), and NES (Appendix 20). In both groups, the subjects gave high self-ratings. The structures of the scales were extracted, estimated, and compared to the original versions of the instruments. The exploratory factor analysis of GNCS-P (Appendix 12), GNCS-N (Appendix 15), NCS (Appendix 18), and NES (Appendix 21) was performed to examine the relationships among the various items of the instruments (Burns & Grove 2001) in order to be able to directly inspect whether or not the factor-loading matrix possessed the so-called simple structure (DeVellis 2003b). 8 factors were extracted for GNCS-P (originally 7 categories), 7 factors were extracted for GNCS-N (originally 7 categories), 13 factors were extracted for NCS (originally 7 factors), and 14 factors were extracted for NES (originally 5 categories). When calculating factor analysis, it is important to take the adequacy of the sample into consideration (Burns & Grove 2001; Bowling 2004). The

KMO test was performed for the determination of the sample size: for GNCS-P, KMO was 0.971, for GNCS-N, KMO was 0.806, for NCS, KMO was 0.918, and for NES, KMO was 0.900. A KMO value over 0.60 is desirable for a good factor analysis (Gorsuch 1983; DeVellis 2003b). The factors solutions for all scales may be considered acceptable in the patient and nurse groups.

The internal consistency reliability of the instrument was evaluated by using Cronbach's coefficient alpha. The Cronbach's alpha for the sum variables varied between 0.707 – 0.965 (GNCS-P) for the patients, and 0.640 – 0.958 (GNCS-N), 0.870 – 0.960 (NCS), and 0.760 – 0.830 (NES) for the nurses. The results indicated that the items had a high correlation with each other. All three instruments had internal consistency and an adequate level of homogeneity (Kline 1998).

The construct validity being the most difficult type of validity for a questionnaire to achieve was conducted (LoBiondo-Wood et al. 2006; Parahoo 2006). It refers to how well a questionnaire measures a particular construct. The principal component analysis (PCA) was used to examine the construct validity of the questionnaires. The number of constructs in the instruments and measurement equivalence among comparison groups was validated through the use of confirmatory factor analysis (Burns & Grove 2001). The original versions of GNCS-P, GNCS-N, NCS, and NES were compared with the results of the confirmatory factor analysis (Appendix 13, 16, 19, 22). Overall cumulative percentage of variance was 69.1 % for the patient data and 60.4 % (GNCS-N), 66.3 % (NCS), 60.3 % (NES) for the nurse data. The structures of the instruments were supported.

The instruments GNCS-P, GNCS-N, NCS, and NES were relevant and could be useful and effective in the measurement of the quality of abdominal surgical nursing care. However, the scales were originally created nine (NCS, NES) and twenty (GNCS) years ago, and the results of the factor analysis showed that the structure of the instruments needed to be improved. The GNCS-P and GNCS-N should be also developed for significant others. NCS categories should be divided in a different way: helping role, teaching-coaching of patients, teaching-coaching of significant others, psychological diagnostic functions, physical diagnostic functions and management, therapeutic interventions, documentation management, research skills, orientation to future, and work role. In the NES, the empowerment-impeding factors as negative factors should be evaluated separately from positive factors, such as empowerment promoting factors, qualities, and performance of an empowered nurse.

6.2 Discussion of the study results

The discussion section proceeded to assess the results of the study against the previous research. The study generated the knowledge of the quality of abdominal surgical nursing care and the factors related to it as perceived by patients and surgical nurses. The study linked PPQ, NPQ, NPC, and NPE together and evaluated the needs and suggestions how to improve nursing practice. The results of the study are next discussed in compliance with the purpose and research questions.

6.2.1 Evaluation of the quality of abdominal surgical nursing care

The evaluation of the quality of abdominal surgical nursing care is a critically important process because of the increasing numbers of operations in the world (DeFrance et al. 2008; Lithuanian Health Statistics 2008). However, there is a lack of reviews and research made in the area of abdominal surgical nursing care. The high level quality of nursing care may predict reimbursements of health care costs. It is economically important to increase the quality of nursing care for getting higher health care service for patients.

Patient and nurse perceptions of the quality of nursing care

The patients' perceptions of quality are significant because they are customers, but PPQ may mostly reflect the satisfaction with health care in concordance with their expectations and needs. Nurses, being usually more critical in their evaluations than patients (e.g. Al-Kandari & Ogundeyin 1998; Lynn & Bradley 1999; Mrayyan 2006; Lynn et al. 2007), are also the main evaluators of quality. However, NPQ may reflect a professional view of quality including the perceptions of competence and empowerment.

Patients and nurses evaluated the quality of abdominal surgical nursing care higher than in the previous studies where the same instruments were used (e.g. Leinonen et al. 2002; Leinonen et al. 2003; Zhao et al. 2008), with more critical attitudes of the nurses (supported by Leinonen et al. 2003; Zagurskiene & Miseviciene 2008; Shen et al. 2011). The differences in their perceptions may be explained by the patient and nurses' different requirements and expectations of nursing quality due to the differences in their education and experience. NPC and NPE were evaluated positively (similarly to the previous studies of Meretoja et al. 2002, 2003; Tzeng 2004; Cowan et al. 2005; Kuokkanen et al. 2007, 2009; Suominen et al. 2011). Lithuanian nurses have good practical skills in nursing practice, but a lack of research and scientific knowledge (Karosas 1995; Kapborg 2000; Kalnins et al. 2001), which may make an impact on the nurses' critical view of their performance and the quality of nursing care. However, the results of the present study showed that the nurses highly self-assessed themselves, and they had enough knowledge and skills in the nursing practice.

The patients gave the highest evaluation to the quality in staff characteristics (supported by Leino-Kilpi & Vuorenheimo 1994; Leinonen et al. 2003; Zhao et al. 2008) and environment (Lynn & Bradley 1999; Lynn et al. 2007; Lucero et al. 2009). It was important for both patients and nurses what kind of work the nurse was doing and how she was acting (e.g. with professionalism, competence, etc.), including the qualities of a person taking care of patient (e.g. sincerity, carefulness, flexibility, tidiness, cleanliness, a sense of humor, etc.). The nurses gave the highest evaluations to the environment and preconditions for nursing care (e.g. Sochalski 2004; Zhao et al. 2008; Izumi et al. 2010; Kramer et al. 2011). Adequate environment contributed to the patients' higher evaluation of the quality of nursing.

The quality in co-operation with significant others, evaluated the lowest by both groups, should be noted specially because of the patient relatives' importance in helping and supporting surgical patient at hospital, and later at home (supported by Yen & Lo 2004; Zhao et al. 2008). It is also economically important to gain the knowledge of how to involve significant others into nursing care with a goal to reduce the expenses of nursing staff taking care of patients at home. Significant others may help to evaluate and monitor the quality of nursing care, as well as increase the quality and patient well-being (e.g. Morris et al. 2006).

Nurse perceptions of their competence

The NPC of the level of their competence and the frequencies of the using of nurse competencies in practice were evaluated high (differently from other Lithuanian studies made by Svediene et al. 2009), with some minor exceptions in the competencies of Teaching-coaching and Ensuring quality (confirmed by Meretoja et al. 2003, 2004; Salonen et al. 2007; Dellai et al. 2009) in opposite to the study of Ming et al. (2007), when nurses high evaluated teaching-coaching category as a component of Chinese Nursing Competency Framework. The nurses highest self-assessed their competencies in managing situations like in previous study of Meretoja et al. (2004), but opposite to other studies (Meretoja et al. 2003; Salonen et al. 2007; Dellai et al. 2009). In Lithuania, it is clear requirements to the nurse competencies according to Medical Norm MN:28 (2004) and Law on Nursing and Midwifery Practice (2009), however, the nurse competence should be defined not separately, but in connection with the quality of nursing care as the main predictor and indicator of the quality. The categories of competencies, such as teaching-coaching and ensuring quality, were evaluated the lowest, probably because of its being the weakest part of the nursing curricula during the Soviet period and later on. The managing situations and work role were evaluated the highest, believably because of good practical skills of nurses as mentioned earlier (e.g. Karosas 1995; Kapborg 2000; Kalnins et al. 2001; Svediene et al. 2009).

Nurse perceptions of their empowerment

The NPE were positive (c.f. Kuokkanen et al. 2002), with the highest evaluation of moral principles and sociability, probably because nursing was a human-oriented profession and the moral principles, as well as social competences, were significant in the nursing care (supported by Stichler & Weiss 2000; Izumi et al. 2010). It is possible that the categories of future-orientedness and expertise were evaluated as the weakest by the nurses because of a lack of their self-confidence that may have resulted from gaps in the nursing education level and organizational factors. Nurses needed the power to influence patients and other health care providers (e.g. Manojlovich 2007; Knol & van Linge 2009).

6.2.2 Factors related to the quality of abdominal surgical nursing care

The factors related to the quality of abdominal surgical nursing care were evaluated. The correlation between both patient and nurse background factors and their perceptions of

the quality of nursing care were evaluated, as well as the correlation between the nurse perceptions of the quality of nursing care, competence, and empowerment.

Background variables related to patient perceptions of the quality of nursing care and nurse perceptions of quality, competence, and empowerment

The correlation between the patient demographic characteristics and the patient perceptions of quality was found depending merely on age. Senior patients evaluated the quality of nursing care higher than the younger ones (cf. Salomon et al. 1999; Shen et al. 2011), probably due to their more frequent contacts with the health care system because of chronic diseases or their lower expectations of the health care quality. However, the estimated relationship was low ($r=0.163$, $p<0.01$). There were no significant correlations between the patient perceptions of the quality of nursing care and clinical factors (differently from e.g. Lumby & England 2000; Leinonen 2002; Sochalski 2004; Lynn et al. 2007; Lucero et al. 2009).

From among the nurse demographic factors, it was only working as a nurse-anesthetist or an operating theatre nurse (the type of a license) that significantly correlated with the nurse perceptions of quality (differently from e.g. Leinonen 2002; Zagurskiene and Miseviciene 2008; Cho et al. 2009). Those nurses evaluated the quality of nursing care higher than the nurses having a general practice license, probably because of the specificity of their work in the operating room as they had shorter contacts and relationship with the patients. Moreover, positive and negative correlations were established between the nurses' educational level, workload, and working in different settings (the type of license) and NPC and NPE (cf. McCaughan & Parahoo 2000; Corbally et al. 2007; Salonen et al. 2007; Lenburg et al. 2009; Roche et al. 2009; Kramer et al. 2011; Mashiach Eizenberg 2011).

The level of nursing education influenced the nurse perceptions of their competence and the use of the competence in practice (supported by Bartlett et al. 2000; Svediene et al. 2009). In the present study, the operating theatre nurses evaluated their competencies in Helping role and Diagnostic functions lower than the nurses having other licenses, as well as the use of competencies in Managing situations and Quality ensuring (similarly to Meretoja et al. 2003), probably because of a specific character of the work of an operating theatre nurse. She/he has limited interaction and communication with patient during the surgery in Lithuania. The anaesthetist nurse is taking care of surgical patient in the activities of communication, helping and supporting the patient during the surgery. The nurses who developed their knowledge and skills by attending the course of improving clinical skills were more critical of themselves (confirmed by Tzeng 2004; Currie et al. 2005) than nurses who did not attend the course. A positive correlation between work satisfaction, work independence, and the nurse competence was identified (similarly to the study of Tzeng 2004).

Nurse education and some completed courses of professional development, such as Clinical Skills Improvement and Nursing Management, had a positive correlation with the nurse perceptions of their empowerment. Other courses, such as Communication and

Nursing Ethics, have impacted the nurse empowerment positively or negatively, depending on the categories of empowerment. The nurses' higher criticism of themselves may have been impacted by the content of the programmes. It is only logical that the nurses who had more knowledge and skills should be more critical of themselves than the nurses with limited knowledge and skills (supported by Zagurskiene & Miseviciene 2008; Svediene et al. 2009). However, as proved by the results of the previous studies, training or professional development have usually been associated with an empowered nurse (e.g. Mok & Au-Yeung 2002; Suominen et al. 2005; Corbally et al. 2007) and increased nurses' well-being at work (Kuokkanen et al. 2003). The established correlation between the nurse workload and empowerment was positive. The nurses who worked more than 1.0 full time equivalent (i.e., more than 40 hours per week) felt more empowered than other nurses, probably feeling more self-confident at their work because of the time spent on duty. The same nurses critically evaluated the environment, maybe because of the same reasons: they spent more time at hospital and were not satisfied with the environment. But the correlation is not totally clear and needs to be studied in future research. A positive correlation was established between nurse work independence, work satisfaction, and NPE (supported by Kuokkanen et al. 2002, 2003, 2009; Mok & Au-Yeung 2002; Faulkner & Laschinger 2008; Zurmehly et al. 2009; Casey et al. 2010).

One finding in the study deserved special attention: there was a negative correlation between the patient and nurse perceptions of the quality of nursing care and the patient and nurse satisfaction. Patient satisfaction has been an indicator of the quality of nursing care in many studies (e.g. Lumby & England 2000, Larrabee & Bolden 2001), and satisfied patients have been evaluating nursing care quality higher than unsatisfied patients (e.g. Mrayyan 2006; Yen & Lo 2004). The phenomena in the present study may be described as cultural characteristics. Culture can play an important part in influencing how people respond to care (also mentioned in Shen et al. 2011). The satisfaction with the health care system in Lithuania was only 39 % (Alber & Kohler 2004), with an average of the European Union of 53 %. It may explain the differences in the satisfaction with health care in the present study, when 50 % of the patients were not satisfied with the general health care in Lithuania, but 75 % were satisfied with health care in the current hospital. Furthermore, a number of authors have recommended devoting more attention to qualitative methodologies to assess the whole satisfaction–dissatisfaction phenomenon in a comprehensive and patient-oriented way, because good and validated quantitative methods were lacking (Bankauskaite & Saarelma 2002). The Lithuanian study of Brogiene and Gurevicius (2009) reported that patients highly evaluated the quality of health care in Lithuania, with the highest evaluation for the interaction with physicians and the lowest for the medical decision-making. However, the studies of Grabauskas et al. (2004) and Liubarskiene et al. (2004) showed that patients in Lithuania were satisfied with and trusted the health care system only in part (usually, less than 50 %). The results supported our findings. Probably satisfaction was not an indicator of the quality of nursing care in the Lithuanian cultural context or it was not defined in the right way. Higher evaluation of the staff characteristics may increase the patient satisfaction. However, the respect and caring nursing activities may elicit patient dissatisfaction of nursing care. Bankauskaite and Saarelma (2002) identified three levels of patient dissatisfaction: shortcomings in the health care system (systemic level), deficiencies in

the provision and quality of services (institutional level), and deficiencies in physicians' attitudes, skills and work (individual level).

Another interesting finding was that independent nurses and nurses with a higher knowledge of quality assurance evaluated the quality of nursing care more critically than less independent nurses and nurses with a lack of knowledge of quality assurance, differently from Needleman et al. (2002) and Sochalski (2004), but supported by a Lithuanian study of Zagurskiene and Miseviciene (2008), who estimated that nurses with higher education were more critical in their evaluation of teaching-coaching activities than nurses with secondary vocational education. Believably, more independent and having more knowledge nurses tended to be more critical of themselves and their activities.

Correlation between nurse perceptions of quality, competence, and empowerment

The established correlation between nurse perceptions of quality, competence, and empowerment was positive on the general level, as well as between separate categories. The correlation between nurse perceptions of competence and quality was positive (similarly to the study of Armellino et al. 2010), with special higher correlations between preconditions for nursing care, co-operation with significant others, caring, and supportive imitative. A positive correlation between qualities, performance of empowered nurse, empowerment promoting factors, and nurse perceptions of quality (supported by Laschinger et al. 2001; Hajbaghery et al. 2005; Faulkner & Laschinger 2008; Armstrong et al. 2009; Kramer et al. 2011), as well as a negative correlation between impeding factors and nurse perceptions of quality were identified (supported by Kuokkanen 2003; Rankinen et al. 2009). A clear positive correlation was also established between nurse competence and nurse empowerment. It means that a competent and empowered surgical nurse could provide high-quality abdominal surgical patient care.

6.3 Conclusions

The study provides new knowledge for the nursing science and practice: first, for the abdominal surgical nursing care, and second, for the quality of nursing care and the competence and empowerment of nurse. The quality of abdominal surgical nursing care as a set of patient and nurse perceptions of the quality of nursing care, nurse perceptions of their competence and empowerment, as well as factors related to them, were identified and evaluated in the present study.

The abdominal surgical nursing care is a specific surgical area where different patients are involved, however, all of them expect the quality of nursing care before, during, and after abdominal surgery. The process of nursing care in abdominal surgery is specific because of the limited time of patient hospitalization, usually multiple patients' diagnosis, as well as multiple contacts and relationships with many different staff before, during, and after the hospitalization. Surgical patient participation in the process of nursing care should be based on the effective relationship and co-operation between patients, nurses, and significant others, which is necessary and imperative for the increasing of the quality of abdominal surgical nursing care. The progress of nursing process in abdominal

surgical nursing should be developed by using evidence-based methods in practice. The quality of abdominal surgical nursing care should be measured constantly from the perceptions of health care professionals, patients, and significant others.

The knowledge about the surgical nurse perceptions of the quality of nursing care, their competence and empowerment lead the picture of the connection between quality, competence and empowerment. The results of the study showed that a competent and empowered surgical nurse tended to deliver a high level quality of abdominal surgical nursing care for patients. Surgical nurse competence and work empowerment should be increased and improved in order to develop the quality of abdominal surgical nursing care.

The knowledge gained from the study may be used to offer better services for abdominal surgical patients and to increase their satisfaction with nursing care, as well as to increase nurse satisfaction with their work and independence at work. Further evaluation of the quality of nursing care is needed, as well as the development and improvement of clinical nursing practice and management, nursing education, and nursing research in the field.

6.4 Implications for clinical practice and management

The results of the research provided some implications for the clinical practice and management. First, implications were based on the evaluation of the quality of abdominal surgical nursing care, including the perceptions of quality, nurse competence, and nurse empowerment. Second, implications referred not only to the background factors, but also to other instruments related to the quality of abdominal surgical nursing care.

Implications based on the evaluation of the quality of abdominal surgical nursing care

Implications based on the patient and nurse perceptions of the quality of abdominal surgical nursing care

Implementing an evidence-based approach in the nursing practice is needed for the achievement of a high level quality of abdominal surgical nursing care. More effort is needed to make the initiatives produce actual changes in practice:

1. Surgical nurses need to co-operate with significant others and involve them in the process of patient care as much as possible by giving oral and written information and instruction. That may increase the responsibilities of significant others for improving patient self-care at hospital and later at home.
2. The nursing care process should be paid special attention in the abdominal surgical units and organized in accordance with patients' needs and nurses' effective work organization, given human and financial recourses of hospitals.
3. The physical and psychological environment in the abdominal surgical units should be kept safe and comfortable for patients, their relatives, and nurses.

Implications based on nurse perceptions of competence

The competence of surgical nurse need be developed and improved by using different approaches. Nurses need to be competent in their practical skills and in the use of competencies in practice:

4. The teaching-coaching competence of surgical nurses should be upgraded and developed in accordance with the changing needs of patients and significant others by using various learning methods in practice.
5. Nurse managers are responsible for staff professional development. They should initiate the new educational programmes and courses for surgical nurse competence development.

Implications based on nurse perceptions of empowerment

Nurse empowerment needs to be upgraded in practice by using various methods:

6. The knowledge and skills in future-orientedness and expertise should be developed for increasing the empowerment of surgical nurses.
7. Nurse managers should support nurses in their own empowering process by making the environment, personal growth, and appropriate facilitating education.

Implications based on background factors related to the quality of abdominal surgical nursing care

Patient and nurse demographic and satisfaction factors, patient clinical factors, and nurse work-related factors should be taken into account in order to improve the quality of abdominal surgical nursing care in practice:

8. The patient satisfaction should be monitored and assessed periodically and constantly in the abdominal surgical setting for a better understanding of the relationship between patient expectations, satisfaction, the quality of nursing care, and other factors that may influence and improve the quality of nursing care.
9. The nurse job satisfaction should be measured and evaluated in the abdominal surgical units including the identification of possible factors that may influence the satisfaction in order to increase the quality of nursing care.

Nurse job independence should be increased in abdominal surgical settings in order to achieve a higher quality of abdominal surgical care.

6.5 Implications for education

The results of the research provided some implications for education based on the evaluation of the quality of abdominal surgical nursing care and background factors related to the quality of abdominal surgical nursing care.

Implications based on evaluation of the quality of abdominal surgical nursing care

There is an urgent need to develop special educational programmes for surgical patients undergoing abdominal surgery and their significant others based on the educational needs of both groups. Patients should be educated how to empower themselves in their treatment and take care of themselves at home after surgery. The competencies of teaching-coaching and ensuring quality should be demonstrated by nursing curricula in

Lithuania. The nurse empowerment may be developed by improving and increasing the educational level of surgical nurses, especially in future-orientedness and expertise.

Implications based on background factors related to the quality of abdominal surgical nursing care

Surgical nurses should have a possibility to develop their professional knowledge and skills and continue their studies at different levels: university education and continuing professional development in order to increase their competence and empowerment.

6.6 Implications for further research

The results of the research also provided some implications for further research in the field. The improvement of the quality of abdominal surgical nursing care requires commitment to delivering nursing care based on available evidence. Next, the implications are presented in accordance with the evaluation of the quality of abdominal surgical nursing care and the factors related to it.

Implications based on evaluation of the quality of abdominal surgical nursing care

Future research with a variety of nationalities and cultural backgrounds and more hospitals as a collection site is suggested for comparing and understanding cultural differences and being able to develop nursing care for patients undergoing abdominal operations. It is important to continue the testing of correlations between the perceptions of patients and nurses of the quality of nursing care; and correlations between nurses' perceptions of quality, competence, and empowerment in intervention studies to enable explorations into the patterns of associations between the factors influencing the quality for getting a clear understanding of how to improve the quality of abdominal surgical nursing care by developing positive correlations between factors.

Implications based on background factors related to the quality of abdominal surgical nursing care

The future research in patient and nurse independent and non-independent background factors and their relationship to the quality of abdominal surgical nursing care is needed for a better understanding of the links and connection between the background factors and the quality of nursing care. More background factors of patients, nurses, and significant others, which may be associated with the quality of abdominal surgical nursing care, should be explored in the future research.

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I also wish to thank all the staff at the Department of Nursing Science, University of Turku, for their support and help during whole process of the study. I especially want to thank Adjunct Professor Leena Salminen, PhD, Professor Sanna Salanterä, PhD, Adjunct Professor Maija Hupli, PhD, and Professor Riitta Suhonen, PhD, who have always been interested in my study and supported me in various ways. Particular thanks are due to Heli Virtanen, MNSc, Riina Junnila, MNSc, Anna Axelin, PhD, and Kati Kolju for their help with many issues related to the various informational help and for sharing many experiences with me during this process. I thank to Evanthia Sakellari, MNSc, Katja Heikkinen, PhD, Riitta-Liisa Lakanmaa, MNSc, for the discussions in the European Academy of Nursing Science (EANS) summer schools and their help during my visits to Turku. I wish to thank Evanthia, who has become my good friend and who has shared her views and thoughts from the very beginning of the research process.

I am grateful to all my colleagues and friends from the European Academy of Nursing Science. The being part of this strong scientific organization is the best scientific experience in my life. The productive and interesting discussions during the doctoral studies at summer school and scientific meetings have improved my scientific thinking and helped to conduct the study. My warm thanks to Professor Ingallil Rahm Hallberg, PhD, the President of EANS, for the support, encouragement and critical help.

I want to thank all my colleagues at the Faculty of Health Sciences, Klaipeda University, for their interest and support, especially Professor Algimantas Kirkutis, PhD, for starting the collaboration between Department of Nursing Science, University of Turku and Department of Nursing, Klaipeda University and for encouraging discussions and practical support for me during these years. In addition, I want to thank all my students from the Department of Nursing for sharing their visions and experiences with me during the research process.

I owe my sincere thanks especially to all patients and nurses who took part in this study. I hope they will see their contribution useful and meaningful from the point of view of all patients in abdominal surgical nursing care. Without their interest, time and co-operation, it would never have been possible to conduct this study.

My special and warm thanks are due to my mother, Galina Veličkienė, and my father, Stanislovas Velička, who have believed in me all the time. Their love, understanding and support have been invaluable. My brother Tomas and his family have always been very supportive. I especially want to thank for the technical assistance in writing the summary. I also gratefully acknowledge my all relatives and friends for reminding me that there are also other things in life than research. I wish to thank Svetlana Kaštalianova, Natalija Vtiurina and their families, for their kind help and support during these years.

I owe my deepest gratitude to my family. I would never conduct the thesis without their support and belief in me. I want to thank my loved husband Igor for his support, patience, love and understanding during these years. My greatest love I owe to my children, Katerina and Arina, who were born during the research process and who have always been the biggest and brightest light and the greatest achievements in my life.

This study was financially supported by the Finnish post-graduate school in nursing science, University of Turku, Klaipeda University which are all gratefully acknowledged.

Klaipėda, September 2011

Natalja

Background variables of patients from the pilot data (n=80) and the main data (n=1208)

Variable	Phase II n=80		Phase III n=1208	
	n	%	n	%
Demographic factors				
Age	80	47 (range 20-75)	1218	47 (range 18-91)
Gender				
Male	31	39	488	40
Female	49	61	720	60
Education				
Secondary school	25	31	394	33
Post-secondary/vocational school	21	26	305	26
College	15	19	276	23
University	15	19	204	17
Other	4	5	17	1
Place of residence				
City	42	53	747	62
Town	29	36	330	27
Village	9	11	131	11
Marital status				
Single	31	39	344	29
Not single	49	61	860	71
Clinical factors				
Type of current surgery				
Laparoscopy	41	51	446	40
Laparotomy	39	49	560	50
Not knowing	-	-	114	10
Type of anesthesia				
Intubation	66	82	758	69
Spinal anesthesia	14	18	141	13
Local anesthesia	-	-	71	6
Not knowing	-	-	135	12
Type of current hospitalization				
Elective	-	-	714	59
Emergency	-	-	489	41
Earlier hospitalizations				
Yes	58	73	900	75
No	21	26	308	25
Earlier surgeries				
Yes	40	50	583	49
No	40	50	610	51

Appendix 1

Experience before arriving to operating theatre:

Pain

Yes	26	32	662	58
No	54	68	483	42

Nausea

Yes	6	8	300	27
No	74	92	798	73

Cold

Yes	10	12	249	23
No	70	88	833	77

Fear of anesthesia

Yes	31	41	405	37
No	49	59	689	63

Fear of surgery

Yes	38	47	566	51
No	42	53	540	49

Experience during the surgery in the operating theatre

Pain

Yes	8	10	92	12
No	72	90	638	88

Nausea

Yes	3	4	46	6
No	77	96	682	94

Cold

Yes	4	5	64	9
No	76	95	654	91

Fear of anesthesia

Yes	16	20	126	17
No	64	80	612	83

Fear of surgery

Yes	17	21	186	25
No	63	79	564	75

Experience in the unit, after the being in operating theatre

Pain

Yes	26	32	530	47
No	54	68	613	53

Nausea

Yes	11	14	172	16
No	69	86	938	84

Cold

Yes	16	20	139	13
No	64	80	952	87

Fear of anesthesia

Yes	9	11	85	8
No	71	89	955	92

Fear of surgery

Yes	9	11	108	10
No	71	89	932	90

Experience of complications during current hospitalization:

Medication errors

Appendices

Yes	3	4	53	5
No	77	96	945	95
<i>Appendix 1</i>				
Nosocomial infections				
Yes	2	3	49	5
No	78	97	951	95
Bedsore				
Yes	2	3	46	4
No	78	97	1026	96
Falls				
Yes	4	5	47	4
No	76	95	1032	96
Satisfaction factors				
General satisfaction with the health care system in Lithuania				
Yes			604	50
No			600	50
Satisfaction with attendance and health care in this hospital				
Yes			1114	92
No			93	8
Satisfaction with medical treatment during the current hospitalization				
Yes			1130	94
No			76	6
Satisfaction with nursing care during the current hospitalization				
Yes			1123	93
No			84	7

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Background variables of nurses from the pilot data (n=114) and the main data (n=218)

Variable	Phase II (n=114)		Phase III (n=218)	
	n	%	n	%
Demographic factors				
Age (years)	114	37 (range 22- 60)	218	39 (range 22-62)
Professional experience in health care system (years)	114	16 (range 1-40)	218	19 (range 1-44)
Professional experience in abdominal surgical nursing (years)	114	15 (range 1-30)	218	17 (range 0-40)
Professional experience in current unit (years)	114	13 (range 1-16)	218	16 (range 1-40)
Marital status	-	-		
Single			50	23
Not single			168	77
Education	-	-		
Vocational secondary medical school*			147	68
College**			49	23
University (Bachelor degree)			18	8
University (Master degree)			2	1
Educational courses attended during last 5 years	-	-		
Clinical skills improvement course			197	90
Communication course			103	48
Ethics course			68	31
Management course			25	12
Course of upgrading the quality of perioperative care			137	63
Licence***	-	-		
General practice nurse			197	90
Anaesthetist and intensive care nurse			46	21
Operating Theatre Nurse			35	16
Other			5	2
Personal workload in this hospital	-	-		
1.0 Full Working Time or less			102	47
More than 1.0 Full Working Time			116	53
Work-related factors				
Level of nurses' independence at work	-	-		
High (original 1-2)			79	36
Low (original 3-5)			135	64
Level of nurses' current knowledge of the quality assurance	-	-		
High (original 1-2)			169	78
Low (original 3-5)			48	22
Level of general quality of abdominal nursing care in Lithuania	-	-		
High (original 1-2)			78	36
Low (original 3-5)			139	64
Level of quality of abdominal nursing care in current hospital	-	-		
High (original 1-2)			129	59
Low (original 3-5)			89	41

Opinion about needs to upgrade the quality of abdominal nursing care in Lithuania	-	-		
Yes, it is necessary			158	72
Yes, but it is not necessary			24	11
Yes, but it is impossible			17	8
No, we shouldn't			1	1
I don't know			18	8
Opinion about needs to upgrade the quality of abdominal nursing care in current hospital	-	-		
Yes, it is necessary			152	70
Yes, but it is not necessary			30	14
Yes, but it is impossible			14	6
No, we shouldn't			3	1
I don't know			19	9
Satisfaction factors				
Level of nurses' satisfaction with work	-	-		
High (original 1-2)			130	60
Low (original 3-5)			88	40

*That is the education of nurses who graduated before 2001 All medical schools became colleges after the education reform, and part of them were closed.

** The level means a non- university degree. Some nurses after the medical school continued in colleges, and others in universities

*** It is possible to have one or more licences for nurses depending on work specifics: surgical nurse may work only at ward or also as an Operating Theatre Nurse and Anaesthetist and intensive care nurse

References to used instruments

Good Nursing Care Scale for Patients, Good Nursing Care Scale for Nurses, Nurse Competence Scale and Nurse Empowerment Scale were used in this thesis. The instruments are not published in this dissertation due to copyright.

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The letter to patient and background factors (Lithuanian version)

PACIENTŲ PO PILVO OPERACIJŲ PERIOPERACINĖS SLAUGOS KOKYBĖ

Klaipėdos universiteto

Sveikatos mokslų fakultetas

Data _____ - ____ - ____

Gerbiama(s) paciente,

Mes norėtume pakviesti Jūs dalyvauti moksliniame tyrime, kuriame analizuojama bei ieškoma galimybių tobulinti perioperacinės slaugos pacientų po pilvo operacijų kokybę. Perioperacinė slauga – tai paciento slauga prieš operaciją, operacijos metu ir po operacijos.

Tyrimo tikslas – išnagrinėti geros perioperacinės slaugos sampratą, remiantis pacientų ir slaugytojų nuomone, taip pat išanalizuoti perioperacinės slaugos kokybės tobulinimo galimybes. Apklausiai pasirinkta 1000 pacientų, besigydančių didžiųjų Lietuvos ligoninių pilvo chirurgijos skyriuose.

Dalyvavimas tyrime yra savanoriškas. Tačiau Jūsų dalyvavimas tyrime mums yra ypatingai svarbus. Šiuolaikinės situacijos tyrimo duomenys būtini tolesniems darbams, kurių tikslas – ne tik visos visuomenės, bet ir atskirų pacientų gerovė. Būtent Jūs, chirurginio skyriaus pacientai, turite informacijos ir patirties, kuri būtina norint įvertinti ir tobulinti perioperacinės slaugos ir sveikatos priežiūros kokybę.

Atsakyti į klausimyno klausimus užtruks apie 30 – 40 minučių. Klausimynas yra anoniminis. Jūsų atsakymai bus panaudoti tik tyrimo tikslams ir, be abejojimo, peržiūrėti laikantis griežto konfidencialumo. Jūsų asmenybė nebus atskleista jokiam anketos apdorojimo proceso etape. Prašome Jūsų atsiųsti anketas užklijuotame voke ir perduoti atliekančiam tyrimą asmeniui. Jei Jūs nepageidaujate dalyvauti nurodytame tyrime, prašome Jūsų bet kokiame atveju užklijuotame voke grąžinti neužpildytą anketą slaugytojai. Jūsų atsisakymas dalyvauti tyrime niekaip neįtakos Jūsų tolimesnės sveikatos priežiūros.

Tyrimo rezultatai bus išspausdinti vietiniuose ir tarptautiniuose leidiniuose. Tyrimo rezultatai bus taip pateikti, kad pagal jų duomenis nebus įmanoma atpažinti respondentų.

Dėl savo kaip tyrimo dalyvių teisių Jūs galite kreiptis į Lietuvos Bioetikos komitetą (Vilniaus g. 33-230, Vilnius, tel. (8 5) 2124565).

Tyrimui vadovauja Klaipėdos universiteto Sveikatos mokslų fakulteto plėtros koordinatore Natalja Istomina (H. Manto, 84, Klaipėda, tel. xxxxxxx, el. paštas: natalja.istomina@ku.lt), Klaipėdos universiteto Sveikatos mokslų fakulteto Slaugos katedros vedėjas doc. dr. Artūras Razbadauskas (el. paštas: rarturas@takas.lt, tel. xxxxxxx), Turku universiteto (Suomija) profesorė Helena Leino-Kilpi (el. paštas heleiki@utu.fi), Turku universiteto ir Kuopio universiteto profesorė Tarja Suominen (el. paštas tarja.suominen@uku.fi)

Su malonumu atsakysime į bet kokius klausimus, susijusius su tyrimu.

Iš anksto dėkojame Jums už bendradarbiavimą!

Pagarbiai,

Natalja Istomina,

Klaipėdos universiteto Sveikatos mokslų fakulteto plėtros koordinatore

KLAUSIMYNAS

Gerbiamas/gerbiama paciente,

Prašome atsakyti į visus šio klausimyno klausimus, pažymėdami Jums tinkantį atsakymą. **Svarbi informacija:** klausimyne nėra teisingų ar neteisingų atsakymų, mes tik noriem sužinoti **Jūsų nuomonę**.

Užpildžius klausimyną, prašome gražinti jį užklijuotame voke, kaip nurodė slaugytoja. Prašome pildyti klausimyną individualiai, neaptarinėjant atsakymų su kitais pacientais.

Pradžioje norėtume Jums pateikti keletą bendrų klausimų. Prašome apibraukti arba įrašyti savo atsakymą (jei tam palikta vieta).

ID kodas (pildyti nereikia) _____

A DEMOGRAFINIAI DUOMENYS

001	Amžius *	_____ metų	
002	Lytis *	vyras	1
		moteris	2
003	Išsilavinimas**	vidurinis	1
		spec. vidurinis	2
		aukštesnysis/aukštasis neuniversitetinis	3
		aukštasis universitetinis	4
		kita _____	
004	Gyvenamoji vieta	didmiestis	1
		miestelis	2
		kaimas	3
005	Šeimyninė padėtis**	vieniša(s)	1
		vedęs/ištekėjusi/gyvena kartu	2
006a	Operacijos pobūdis	laparoskopija (skylutės)	1
		laparotomija (pjūvis)	2
		Nežinau	3
006b	Anestezijos pobūdis *	intubacinė narkozė	1
		spinalinė nejautra	2
		vietinis nuskausminimas	3
		nežinau	4
006c	Šios hospitalizacijos pobūdis**	planinė tvarka	1
		skubi tvarka	2
006d	Operacijos priežastis _____		
007	Kiek dienų Jus praleidote ligoninėje, įskaitant atvykimo ir išvykimo dienas?*	_____ dienų	

008a Ar anksčiau Jus gulėjote ligoninėje? Taip 1
Ne 2

008b Ar anksčiau buvote operuota(s)?* Taip 1
Ne 2

009a Kaip Jus galėtumėte apibūdinti savo savijautą ir patirtį **prieš atvykstant į operacinę**, kai Jus gulėjote skyriuje (palatoje)?**

		visad a	labai dažna i	dažna i	reta i	labai retai	niekad a	nežinau
1	Skausmas	6	5	4	3	2	1	0
2	pykinimas/vėmimas	6	5	4	3	2	1	0
3	šaltis/šaltkrėtis	6	5	4	3	2	1	0
4	anestezijos baimė	6	5	4	3	2	1	0
5	operacijos baimė	6	5	4	3	2	1	0

009b Kaip Jus galėtumėte apibūdinti savo savijautą ir patirtį **operacijos metu**?**

		visad a	labai dažna i	dažna i	reta i	labai retai	niekad a	nežinau
1	Skausmas	6	5	4	3	2	1	0
2	pykinimas/vėmimas	6	5	4	3	2	1	0
3	šaltis/šaltkrėtis	6	5	4	3	2	1	0
4	anestezijos baimė	6	5	4	3	2	1	0
5	operacijos baimė	6	5	4	3	2	1	0

009c Kaip Jus galėtumėte apibūdinti savo savijautą ir patirtį **po operacijos**, kai Jus gulėjote skyriuje (palatoje)?**

		visad a	labai dažna i	dažna i	reta i	labai retai	niekad a	nežinau
1	Skausmas	6	5	4	3	2	1	0
2	pykinimas/vėmimas	6	5	4	3	2	1	0
3	šaltis/šaltkrėtis	6	5	4	3	2	1	0
4	anestezijos baimė	6	5	4	3	2	1	0
5	operacijos baimė	6	5	4	3	2	1	0

009d Ar Jums teko patirti šios hospitalizacijos metu (prieš, po ar operacijos metu) šias komplikacijas?

		visad a	labai dažna i	dažna i	reta i	labai retai	niekad a	nežinau
1	vaistų vartojimo klaidas	6	5	4	3	2	1	0
2	hospitalines infekcijas	6	5	4	3	2	1	0
3	Pragulas	6	5	4	3	2	1	0
4	Griuvimą	6	5	4	3	2	1	0

010a Ar esate patenkintas sveikatos priežiūros sistema Lietuvoje?

Taip 1
Ne 2

010b Ar esate patenkinta(s) Jūsų sveikatos priežiūra šios hospitalizacijos metu?

Taip 1
Ne 2

010c Ar esate patenkinta(s) Jūsų gydymu šios hospitalizacijos metu?

Taip 1
Ne 2

Appendix 4

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010d Ar esate patenkinta(s) slauga šios hospitalizacijos metu?

Taip

1

Ne

2

* ©The background factors developed by Leino-Kilpi et al. (1994)

** © The background factors developed by Leinonen (2002)

The letter to nurse and background factors (Lithuanian version)

PACIENTŲ PO PILVO OPERACIJŲ PERIOPERACINĖS SLAUGOS KOKYBĖ

Klaipėdos universiteto

Sveikatos mokslų fakultetas

Data _____ - ____ - ____

Gerbiama(s) slaugytoja(u),

Mes norėtume pakviesti Jūs dalyvauti moksliniame tyrime, kuriame analizuojama bei ieškoma galimybių tobulinti perioperacinės slaugos pacientų po pilvo operacijų kokybę. Perioperacinė slauga – tai paciento slauga prieš operaciją, operacijos metu ir po operacijos.

Tyrimo tikslas – išnagrinėti geros perioperacinės slaugos sampratą, remiantis pacientų ir slaugytojų nuomonę, taip pat išanalizuoti perioperacinės slaugos kokybės tobulinimo galimybes. Apklausiai pasirinkta apie 300 slaugytojų, dirbančių didžiųjų Lietuvos ligoninių pilvo chirurgijos skyriuose.

Dalyvavimas tyrime yra savanoriškas. Tačiau Jūsų dalyvavimas tyrime mums yra ypatingai svarbus. Šiuolaikinės situacijos tyrimo duomenys būtini tolesniems darbams, kurių tikslas – ne tik visos visuomenės, bet ir atskirų pacientų gerovė. Būtent Jūs, chirurginio skyriaus slaugytojai, turite informacijos ir patirties, kuri būtina norint įvertinti ir tobulinti perioperacinės slaugos ir sveikatos priežiūros kokybę.

Atsakyti į klausimyno klausimus užtruks apie 50 – 60 minučių. Klausimynas yra anoniminis. Jūsų atsakymai bus panaudoti tik tyrimo tikslams ir, be abejojimo, peržiūrėti laikantis griežto konfidencialumo. Jūsų asmenybė nebus atskleista jokiam anketos apdorojimo proceso etape. Prašome Jūsų atsiųsti anketas užklijuotame voke ir perduoti atliekančiam tyrimą asmeniui. Jei Jūs nepageidaujate dalyvauti nurodytame tyrime, prašome Jūsų bet kokią atvejų užklijuotame voke išsiųsti neužpildytą anketą.

Tyrimo rezultatai bus išspausdinti vietiniuose ir tarptautiniuose leidiniuose. Tyrimo rezultatai bus taip pateikti, kad pagal jų duomenis nebus įmanoma atpažinti respondentų.

Dėl savo kaip tyrimo dalyvių teisių Jūs galite kreiptis į Lietuvos Bioetikos komitetą (Vilniaus g. 33-230, Vilnius, tel. (8 5) 2124565).

Tyrimui vadovauja Klaipėdos universiteto Sveikatos mokslų fakulteto plėtros koordinatore Natalja Istomina (H. Manto, 84, Klaipėda, tel. xxxxxxx, el. paštas: natalja.istomina@ku.lt), Klaipėdos universiteto Sveikatos mokslų fakulteto Slaugos katedros vedėjas doc. dr. Artūras Razbadauskas (el. paštas: rarturas@takas.lt, tel. xxxxxxx), Turku universiteto (Suomija) profesorė Helena Leino-Kilpi (el. paštas heleiki@utu.fi), Turku universiteto ir Kuopio universiteto profesorė Tarja Suominen (el. paštas tarja.suominen@uku.fi)

Su malonumu atsakysime į bet kokius klausimus, susijusius su tyrimu.

Iš anksto dėkojame Jums už bendradarbiavimą!

Pagarbiai,

Natalja Istomina,

Klaipėdos universiteto Sveikatos mokslų fakulteto plėtros koordinatore

KLAUSIMYNAS

PILDYMO INSTRUKCIJOS

Gerbiama slaugytoja,

Prašome atsakyti į visus šio klausimyno klausimus, pažymėdami Jums tinkantį variantą. Svarbi informacija: klausimyne nėra teisingų ar neteisingų atsakymų, mes tik norime sužinoti **Jūsų nuomonę**.

Prašome pildyti klausimą individualiai, neaptarinėdami atsakymų su kolegomis.

Pradžioje norime Jums pateikti keletą demografinių (bendrų) klausimų. Prašome apibraukti arba įrašyti savo atsakymą (jei tam palikta vieta). Užpildžius klausimą, prašome gražinti jį užklijuotame voke kaip nurodyta instrukcijoje.

ID kodas (pildyti nereikia)_____

A DEMOGRAFINIAI DUOMENYS

001 Amžius*_____metų

002 Šeimyninė padėtis	Vieniša	1
	Nevieniša	2

003 Išsilavinimas	Medicinos mokykla	1
	Kolegija	2
	Universitetas (bakalauras)	3
	Universitetas (magistrantūra)	4

004 Slaugos licencija	Bendrosios praktikos	Taip 1/ Ne 2
	Anestezijos ir intensyviosios terapijos	Taip 1/ Ne 2
	Operacinės slaugos	Taip 1/ Ne 2
	Kita_____	Taip 1/ Ne 2

005 Pareigos	Klinikinė slaugytoja	Taip 1/ Ne 2
	Vyresnioji slaugytoja/slaugos administratorė	Taip 1/ Ne 2
	Ligoninės	Taip 1/ Ne 2

006 Profesinė patirtis*

Sveikatos priežiūros sistemoje_____metų
Abdominalinės chirurgijos srityje_____metų
Šiame skyriuje_____metų

007 Profesinė karjera

007a Kokius kursus Jūs baigėte per paskutiniuos 5 metus?

Klinikinių įgūdžių tobulinimas	Taip 1/ Ne 2
Bendravimas/komunikacija	Taip 1/ Ne 2
Etika/deontologija	Taip 1/ Ne 2
Vadyba/administravimas	Taip 1/ Ne 2

007b Kokia institucija organizavo šiuos kursus?		
	Kolegija	Taip 1/ Ne 2
	Kauno medicinos universitetas	Taip 1/ Ne 2
	Klaipėdos universitetas	Taip 1/ Ne 2
	Vilniaus universitetas	Taip 1/ Ne 2
	Slaugos darbuotojų tobulinimosi ir specializacijos centras	Taip 1/ Ne 2
007c Ar teko dalyvauti kursuose apie slaugos kokybę?		Taip 1/ Ne 2
008 Kokių krūvių dirbate šioje ligoninėje?		
	Mažiau, nei 0,5 etato	1
	0.5 – 0.75 etato	2
	1.0 etato	3
	Daugiau, nei 1.0 etato	4
	Daugiau, nei 1,5 etato	5
009a Koks nepriklausomumo lygmuo Jūsų tiesioginiame darbe?		
	Labai aukštas	1
	Pakankamai aukštas	2
	Vidutinis	3
	Žemas	4
	Negzistuoja	5
009b At Jūs esate patenkinta savo dabartiniu darbu?		
	Labai patenkinta	1
	Pakankamai patenkinta	2
	Vidutiniškai patenkinta	3
	Nepatenkinta	4
	Negaliu įvertinti	5
010a Kaip galėtumėte įvertinti savo dabartines žinias apie slaugos kokybę?*		
	Puikios	1
	Geros	2
	Vidutiniškos	3
	Blogos	4
	Neturiu žinių	5
010b Kaip vertinate bendrai Lietuvos mastu slaugos kokybę?		
	Puikiai	1
	Gerai	2
	Vidutiniškai	3
	Blogai	4
	Neturiu nuomonės	5
010c Kaip vertinate Jūsų ligoninės slaugos kokybę?		
	Puikiai	1
	Gerai	2
	Vidutiniškai	3
	Blogai	4
	Neturiu nuomonės	5

010d Ar reikėtų tobulinti abdominalinės perioperacinės slaugos kokybę Lietuvoje?

Taip, tai būtina	1
Taip, bet ne būtina	2
Taip, bet tai neįmanoma	3
Nereikia	4
Neturiu nuomonės	5

010e Ar reikėtų tobulinti abdominalinės perioperacinės slaugos kokybę Jūsų įstaigoje?

Taip, tai būtina	1
Taip, bet ne būtina	2
Taip, bet tai neįmanoma	3
Nereikia	4
Neturiu nuomonės	5

* ©The background factors developed by Leino-Kilpi et al. (1994)

Correlation between some clinical background factors of patients (Spearman's rho)

	Earlier hospitalizations	Type of hospitalization	Pain before arriving to operating theatre	General satisfaction with the health care system in Lithuania	Satisfaction with attendance and health care in current hospital
Earlier surgeries	.480**	.019	.356**	-.005	.044
Pain before arriving to operating theatre	.093**	.356**	1.	.087**	.063*
Pain during the surgery in the operating theatre	-.030	.037	.150**	-.025	.090*
Pain in the unit, after the being in operating theatre	.154**	.114**	.327**	.131**	.048
Satisfaction with medical treatment during the current hospitalization	.001	.025	.040	.206**	.680**
Satisfaction with nursing care during the current hospitalization	.023	.046	.023	.203**	.641**

**Correlation is significant at the 0.01 level (2-tailed);

*Correlation is significant at the 0.05 level (2-tailed)

Binary logistic regression model for testing the associations between the quality of nursing care and satisfaction with nursing care, patient data (n=1208)

	Wald	p	OR	95% CI.for OR	
				Lower	Upper
Staff characteristics	5.5	.019	.46	.24	.88
Physical	4.1	.043	.61	.38	.99
Respect	6.3	.012	2.63	1.24	5.58
Caring	5.5	.018	2.48	1.17	5.27
Human orienteded activities	9.6	.002	.12	.03	.46
Preconditions	6.2	.013	.44	.23	.84
Constant	46.1	<.001	2766.3		

Binary logistic regression model for testing the associations between the quality of nursing care and background factors, nurse data (n=218)

	Wald	p	OR	95% CI for OR	
				Lower	Upper
Marital status (1-single, 2-non single)					
Progress of nursing process	4.6	.032	.64	.43	.96
Constant	10.7	.001	23.41		
Marital status (1-single, 2-non single)					
Expertise in the qualities of empowered nurse	5.1	.024	.47	.25	.91
Sociability in the performance of empowered nurse	6.0	.014	1.97	1.15	3.39
Constant	3.4	.065	10.79		
Workload at Hospital (1-<=1 workload, 2- 1 workload)					
Environment	12.1	<.001	2.03	1.36	3.02
Constant	2.4	.118	.18		
Workload at Hospital (1-<=1 workload, 2- 1 workload)					
Personal integrity in the performance of empowered nurses	5.7	.017	.34	.14	.82
Performance of empowered nurses	10.1	.001	5.28	1.89	14.71
Sociability in the empowerment impeding factors	10.7	.001	.63	.48	.83
Constant	2.4	.116	6.23		

Multinomial logistic regression model for testing the associations between the quality of nursing care and nurse satisfaction and independence at work, nurse data (n=218)

Nurse satisfaction with work		Wald	p	OR	95% CI for OR	
					Lower Bound	Upper Bound
1 High level	Intercept	12.0	.001			
	Human oriented activities	2.7	.100	.078	.01	1.6
	Preconditions	6.5	.011	78.92	2.72	2291.15
	Environment	2.3	.126	5.98	.60	59.21
	Progress of nursing process	3.8	.050	11.84	1.01	139.84
	Cooperation with family	4.0	.045	.15	.022	.95
2 Rather high level	Intercept	3.8	.051			
	Human oriented activities	4.4	.036	.08	.01	.85
	Preconditions	6.4	.012	20.40	1.96	212.14
	Environment	2.7	.101	3.95	.76	20.35
	Progress of nursing process	5.1	.024	10.66	1.37	82.83
	Cooperation with family	4.1	.042	.179	.03	.94
3 Average level	Intercept	2.0	.162			
	Human oriented activities	2.8	.095	.13	.01	1.42
	Preconditions	3.3	.070	8.49	.84	85.68
	Environment	4.2	.040	5.55	1.08	28.46
	Progress of nursing process	4.2	.041	8.21	1.09	61.86
	Cooperation with family	3.7	.054	.20	.04	1.03
4 Low level	Intercept	1.3	.263			
	Human oriented activities	1.4	.234	.17	.01	3.10
	Preconditions	1.6	.203	5.59	.39	79.37
	Environment	2.0	.155	4.30	.58	32.01
	Progress of nursing process	3.7	.056	9.73	.95	99.98
	Cooperation with family	1.8	.180	.24	.03	1.92

Nurse independence at work		Wald	p	OR	95% CI for OR	
					Lower Bound	Upper Bound
1 High level	Intercept	2.3	.127			
	Progress of nursing process	.1	.860	1.21	.15	9.63
	Cooperation with family	4.5	.034	10.79	1.20	96.89
2 Rather high level	Intercept	3.6	.056			
	Progress of nursing process	1.3	.238	.57	.22	1.45
	Cooperation with family	4.9	.026	2.11	1.09	4.06
3 Average level	Intercept	.1	.750			
	Progress of nursing process	3.3	.070	.43	.17	1.07
	Cooperation with family	5.4	.020	2.13	1.12	4.04
4 Low level	Intercept	.037	.847			
	Progress of nursing process	4.270	.039	.295	.093	.939
	Cooperation with family	.582	.446	1.355	.621	2.955

Reliability of pilot results

Good Nursing Care Scale (GNCS)	Cronbach's Alpha	
	Nurses (n=114)	Patients (n=80)
Staff characteristics	0.831	0.926
Care-related activities	0.928	0.921
Preconditions for care	0.807	0.959
Environment	0.352	0.828
Progress of nursing process	0.363	0.688
Co-operation with relatives	0.712	0.964
Total	0.665	0.881

Nurse Competence Scale (NCS)	Nurses (n=114) Cronbach's Alpha	
	Evaluation of competencies based on VAS (1 – 100)	Frequency of the using of competencies in practice
Helping role	0.905	0.780
Teaching – coaching	0.952	0.915
Diagnostic functions	0.872	0.704
Managing situations	0.919	0.758
Therapeutic interventions	0.937	0.800
Ensuring quality	0.927	0.859
Work role	0.964	0.883
Total	0.925	0.814

Nurse Empowerment Scale (NCS)	Nurses (n=114) Cronbach' alpha
Qualities of empowered nurse	0.906
Performance of empowered nurse	0.913
Empowerment promoting factors	0.938
Empowerment impeding factors	0.931
Total	0.922

Means and SDs of items of GNCS-P, patient data (n=1208)

Items (shortened, not original) (© Leino-Kilpi)	Mean	SD
010 nurse interest in well-being	5,30	1,018
011 physician interest in well-being	5,33	,997
012 nurse carefulness	5,30	1,049
013 physician carefulness	5,36	,979
014 nurse intellegency	5,39	,990
015 physician intellegency	5,44	,929
016 nurse flexibility	5,32	1,022
017 physician flexibility	5,38	,984
018 nurse keeping the promises	5,38	,967
019 physician keeping the promises	5,45	,904
020 nurse politeness	5,51	,852
021 physician politeness	5,57	,794
022 nurse tidiness	5,72	,670
023 physician tidiness	5,74	,632
024 sufficient information	5,09	1,171
025 sufficient guidance	4,93	1,320
026 sufficient written information	3,88	1,937
027 professional providing of care	5,42	,931
028 sufficient pain relief	5,43	1,013
029 sufficient consulting	4,98	1,347
030 sufficient discussion	4,73	1,541
031 involving in care	4,72	1,509
032 monitoring of symptoms	4,93	1,442
033 practical help	4,73	1,584
034 moving of information	5,31	1,154
035 keeping up-to-date	4,83	1,357
036 communication	5,24	1,055
037 individuality	4,99	1,283
038 enough rest	5,22	1,128
039 positive attitude to requests	5,24	1,028
040 keeping in secret the personal affairs	5,36	1,107
041 encouragement	5,20	1,106
042 help from nurses	4,98	1,393
043 nurse practical skills	5,18	1,035
044 physician practical skills	5,34	,958
045 nurse knowledge about motivation	5,21	1,049
046 physician knowledge about motivation	5,40	,909
047 competence of hospital	5,37	,941

048 having time of nurse	5,23	1,102
049 having time of nurse of physician	5,23	1,072
050 nurse vocation	5,28	,990
051 physician vocation	5,42	,901
052 understanding life-situation	4,84	1,411
053 nurse guiding in job	5,37	,919
054 physician guiding in job	5,51	,869
055 consideration of previous experience	5,10	1,321
056 safety	5,31	1,097
057 clear programme	5,50	,918
058 waiting for results	5,04	1,266
059 written material to home	3,79	1,969
060 friendliness	5,15	1,202
061 rapidity of talking with nurse	5,10	1,207
062 rapidity of talking with physician	5,15	1,177
063 waiting for tests	2,92	1,873
064 duration of hospitalization	3,42	1,943
065 clear written instructions	3,88	1,964
066 information about complications	4,80	1,515
067 knowledge about behaviour at home	4,94	1,379
072 information for significant others	4,97	1,340
073 guidance for significant others	4,83	1,432
074 written material for significant others	3,72	1,961
075 involving in the planning of significant others	4,22	1,821
076 sufficient talking with significant others	4,46	1,661
077 care evaluation with significant others	4,41	1,709
078 instructions for significant others	4,26	1,795
079 keeping up-to-date of significant others	4,39	1,753
080 listening of significant others	4,86	1,451
081 positive view to request of significant others	4,97	1,320
082 encouragement of significant others	4,71	1,550
083time for significant others	4,68	1,526

Results of exploratory factor analysis of GNSC-P, patient data (n=1208)

Items (shortened, not original) (© Leino-Kilpi)	Component							
	1	2	3	4	5	6	7	8
010 nurse interest in well-being			,720					
011 physician interest in well-being			,702					
012 nurse carefullness			,720					
013 physician carefullness			,693					
014 nurse intellegency			,713					
015 physician intellegency			,650					
016 nurse flexiblity			,712					
017 physician flexiblity			,679					
018 nurse keeping the promises			,726					
019 physician keeping the promises			,669					
020 nurse politeness			,633					
021 physician politeness			,618				,411	
022 nurse tidiness			,412				,682	
023 physician tidiness							,731	
024 sufficient information				,576				
025 sufficient guidance				,631				
026 sufficient written information				,643				
027 professional providing of care	,470							
028 sufficient pain relief				,356				
029 sufficient consulting				,685				
030 sufficient discussion				,735				
031 involving in care				,730				
032 monitoring of symptoms				,630				
033 practical help				,710				
034 moving of information				,423				
035 keeping up-to-date				,516				
036 communication						,417		
037 individuality				,472		,402		
038 enough rest	,446					,550		
039 positive attitude to requests	,458					,473		
040 keeping in secret the personal affairs						,511		
041 encouragement	,446							
042 help from nurses	,415			,491				
043 nurse practical skills	,694							
044 physician practical skills	,688							

045 nurse knowledge about motivation	,729		
046 physician knowledge about motivation	,710		
047 competence of hospital	,696		
048 having time of nurse	,636	,435	
049 having time of nurse of physician	,604	,417	
050 nurse vocation	,680		
051 physician vocation	,635		
052 understanding life-situation	,476		
053 nurse guiding in job	,712		
054 physician guiding in job	,666		
055 consideration of previous experience	,528		
056 safety			
057 clear programme	,484		
058 waiting for results			,631
059 written material to home		,477	
060 friendliness			,630
061 rapidity of talking with nurse			,612
062 rapidity of talking with physician			,635
063 waiting for tests			,825
064 duration of hospitalization			,835
065 clear written instructions		,481	
066 information about complications			,485
067 knowledge about behaviour at home			,559
072 information for significant others	,675		
073 guidance for significant others	,727		
074 written material for significant others	,667		
075 involving in the planning of significant others	,760		
076 sufficient talking with significant others	,832		
077 care evaluation with significant others	,796		
078 instructions for significant others	,827		
079 keeping up-to-date of significant others	,790		
080 listening of significant others	,770		
081 positive view to request of significant others	,718		
082 encouragement of significant others	,766		
083time for significant others	,786		

*Extraction method: Principal Component Analysis

**Rotation method: Varimax with Kaiser Normalization

Results of Confirmatory Factor analysis of GNCS-P, patient data (n=1208)

Categories Items	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII
Staff characteristics (percentage of variance: 17.6, Cronbach's alpha: 0.92)							
010	.743						
011	.770						
012	.742						
013	.749						
014	.726						
015	.761						
016	.732						
017	.727						
018	.686						
019	.717						
020	.705						
021	.684						
022	.622						.563
023	.604						.581
Task-oriented activities (percentage of variance: 15.3, Cronbach's alpha: 0.90)							
024	.428		.564				
025			.633				
027	.476		.546				
028	.405		.409				
029			.623				
030			.626				
031			.647				
032			.634				
033			.611				
034	.426		.638				
035			.569				
Human-oriented activities (Cronbach's alpha: 0.84)							
036			.685				
037			.623				
038			.538				
039			.648				
040			.628				
041		.441	.600				
042		.432	.619				
Preconditions (percentage of variance: 15.9, Cronbach's alpha: 0.88)							
043	.418	.584					
044	.404	.680					
045		.669					
046		.664					
047		.712					
048	.497	.559					
049	.515	.607					
050	.408	.626					

051	.400	.590	
052		.517	
053	.477	.576	
054	.485	.599	
055		.434	.436
Environment (Cronbach's alpha: 0.64)			
056		.561	
057		.511	
Progress of nursing process (Cronbach's alpha: 0.90)			
058		.570	
060		.666	
061		.647	
062		.629	
066		.553	.427
067		.569	.422
Progress of nursing process (percentage of variance: 4.1)			
026		.403	.642
059			.696
Progress of nursing process (percentage of variance: 2.5)			
063			.761
064			.853
065		.431	.443
Cooperation with relatives (percentage of variance: 13.7, Cronbach's alpha: 0.96)			
072		.562	
073		.650	
074		.664	.560
075		.709	
076		.781	
077		.755	
078		.796	
079		.749	
080		.758	
081		.741	
082		.710	
083		.786	
Total % of variance explained 69.1			

*Varimax rotation and Kaiser Normalization: 7-factor solution after principal factor analysis

**Used specific number (7) of factors. Factors loading below 0.40 excluded.

***Explanation of items with reference to factors see Appendices 11, 12

Means and SDs of items of GNCS-N, nurse data (n=218)

Items (shortened, not original) (© Leino-Kilpi)	Mean SD
010 nurse interest in well-being	5,06 ,958
011 physician interest in well-being	4,22 1,110
012 nurse carefullness	5,36 ,770
013 physician carefullness	4,34 1,187
014 nurse intellegency	4,78 ,803
015 physician intellegency	4,65 1,148
016 nurse flexiblity	4,99 ,929
017 physician flexiblity	4,16 1,123
018 nurse keeping the promises	5,25 ,883
019 physician keeping the promises	4,38 1,219
020 nurse politeness	5,32 ,854
021 physician politeness	4,47 1,144
022 nurse tidiness	5,55 ,770
023 physician tidiness	4,68 1,202
024 sufficient information	4,99 1,134
025 sufficient guidance	4,73 1,203
026 sufficient written information	3,41 1,559
027 professional providing of care	5,41 ,843
028 sufficient pain relief	5,49 ,982
029 sufficient consulting	4,34 1,444
030 sufficient discussion	3,85 1,491
031 involving in care	3,71 1,573
032 monitoring of symptoms	4,84 1,369
033 practical help	4,98 1,256
034 moving of information	4,93 1,312
035 keeping up-to-date	4,00 1,419
036 communication	5,06 1,149
037 individuality	5,08 1,129
038 enough rest	4,85 1,184
039 positive attitude to requests	5,12 1,061
040 keeping in secret the personal affairs	4,38 2,099
041 encouragement	5,01 1,101
042 help from nurses	4,72 1,157
043 nurse practical skills	4,68 ,969
044 physician practical skills	4,98 ,957
045 nurse knowledge about motivation	5,15 ,908
046 physician knowledge about motivation	4,60 1,073
047 competence of hospital	5,28 1,060

048 having time of nurse	4,64 1,217
049 having time of nurse of physician	5,41 ,887
050 nurse vocation	4,73 1,204
051 physician vocation	5,11 1,075
052 understanding life-situation	5,28 1,049
053 nurse guiding in job	4,14 1,204
054 physician guiding in job	3,45 1,267
055 consideration of previous experience	4,60 1,082
056 safety	5,04 1,068
057 clear programme	4,49 1,057
058 waiting for results	4,33 1,274
059 written material to home	4,13 1,385
060 friendliness	3,74 1,519
061 rapidity of talking with nurse	4,66 1,279
062 rapidity of talking with physician	4,65 1,141
063 waiting for tests	4,58 1,301
064 duration of hospitalization	4,36 1,243
065 clear written instructions	3,42 1,376
066 information about complications	4,00 1,340
067 knowledge about behaviour at home	3,74 1,403
072 information for significant others	3,89 1,478
073 guidance for significant others	4,48 1,383
074 written material for significant others	4,16 1,512
075 involving in the planning of significant others	4,72 1,430
076 sufficient talking with significant others	4,74 1,319
077 care evaluation with significant others	4,76 1,282
078 instructions for significant others	4,35 1,302

Results of exploratory factor analysis of GNSC-N, nurse data (n=218)

Items (shortened, not original) (© Leino-Kilpi)	Component						
	1	2	3	4	5	6	7
010 nurse interest in well-being		,322	,455				
011 physician interest in well-being		,754					
012 nurse carefulness		,332	,623				
013 physician carefulness		,826					
014 nurse intellegency			,457				
015 physician intellegency		,814					
016 nurse flexibility				,508			
017 physician flexibility		,813					
018 nurse keeping the promises		,312	,541	,377			
019 physician keeping the promises		,893					
020 nurse politeness			,666				
021 physician politeness		,891					
022 nurse tidiness			,725				
023 physician tidiness		,839					
024 sufficient information			,398			,333	
025 sufficient guidance		,329	,434			,357	
026 sufficient written information						,386	,573
027 professional providing of care			,619				
028 sufficient pain relief			,588	,316			
029 sufficient consulting			,356			,552	
030 sufficient discussion						,691	
031 involving in care						,725	
032 monitoring of symptoms				,304		,579	
033 practical help			,320	,464			
034 moving of information	,393			,301		,300	
035 keeping up-to-date					,351	,418	
036 communication			,633				
037 individuality			,616				
038 enough rest			,578				
039 positive attitude to requests			,700				
040 keeping in secret the personal affairs		,320	-,382				
041 encouragement			,725			,311	
042 help from nurses			,753				
043 nurse practical skills			,373	,548	,458		
044 physician practical skills			,354	,417	,307		
045 nurse knowledge about motivation	,324		,387		,523		

Appendices

046 physician knowledge about motivation		,394	,535	,308
047 competence of hospital		,614		
<i>Appendix 15</i>				
048 having time of nurse		,373	,485	,448
049 having time of nurse of physician	,305	,580		
050 nurse vocation		,377		,586
051 physician vocation	,394	,372	,411	
052 understanding life-situation		,551		,316
053 nurse guiding in job			,502	
054 physician guiding in job				,656
055 consideration of previous experience	,435		,542	
056 safety	,627		,341	
057 clear programme	,348		,642	
058 waiting for results			,609	
059 written material to home	,319		,437	
060 friendliness				,744
061 rapidity of talking with nurse	,445		,619	
062 rapidity of talking with physician	,561		,511	
063 waiting for tests	,832			
064 duration of hospitalization	,789			
065 clear written instructions	,479			,643
066 information about complications	,657			,342
067 knowledge about behaviour at home	,686			
072 information for significant others	,752			
073 guidance for significant others	,840			
074 written material for significant others	,673		,391	
075 involving in the planning of significant others	,820			
076 sufficient talking with significant others	,800			
077 care evaluation with significant others	,840			
078 instructions for significant others	,708		,336	

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*Extraction method: Principal Component Analysis

**Rotation method: Varimax with Kaiser Normalization

Results of Confirmatory Factor analysis of GNCS-N, nurse data (n=218)

Categories Items	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII
Staff characteristics (percentage of variance: 8.9, Cronbach's alpha: 0.96)							
010				.425			
011			.727				
012				.634			
013			.795				
015			.777				
017			.832				
018				.517			
019			.882				
020				.609			
021			.854				
022				.702			
023			.735				
Task-oriented activities (percentage of variance: 13.1, Cronbach's alpha: 0.94 overall)							
024	.703						
025	.708						
027				.577			
028	.568			.422			
029	.656					.413	
030	.514					.488	
032	.657						
033	.728						
034	.695						
Task-oriented activities (percentage of variance: 5.0)							
026						.709	
031	.485					.510	
Human-oriented activities (Cronbach's alpha: 0.93)							
036	.631						
037	.650						
038	.659						
039	.716						
041	.746						
042	.704						
Preconditions (percentage of variance: 4.4, Cronbach's alpha: 0.94 overall)							
040							.427
043							.740
044							.691
Preconditions (percentage of variance: 8.3)							
045				.461			
046				.406			
047				.625			
049				.643			
Environment (Cronbach's alpha: 0.71)							

Progress of nursing process (percentage of variance: 8.0, Cronbach's alpha: 0.82)

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053	.500		
054	.557	.482	
055	.667		
056	.602		
057	.730		
058	.607		
059	.553		
060	.582	.530	
061	.644		
062	.685		

Cooperation with relatives (percentage of variance: 12.7, Cronbach's alpha: 0.97)

063	.784		
064	.797		
065	.554	.413	
066	.612		
067	.735		
068	.770		
069	.838		
070	.762		
071	.814		
072	.779		
073	.775		
074	.689		
Total % of variance explained	60.4		

*Varimax rotation and Kaiser Normalization: 7-factor solution after principal factor analysis

**Used specific number (7) of factors. Factors loading below 0.40 excluded.

***Explanation of items with reference to factors see Appendices 14, 15.

Means and SDs of items of NCS, nurse data (n=218)

Items (shortened, not original) (©Meretoja)	Mean	Std. Deviation
075 care planning	74,50	27,032
076 supporting patients	69,09	29,906
077 evaluation of own philosophy	67,05	31,017
078 modifying of care plan	73,50	28,910
079 utilising nursing research findings	69,91	30,522
080 developing the treatment culture	74,67	28,673
081 decision making by values	74,01	29,708
082 patient education needs	66,24	33,462
083 time for patient training	66,64	33,172
084 patient education content	66,54	33,660
085 individualised patient education	69,09	32,433
086 co-ordinating patient education	67,66	33,390
087 family members' needs for guidance	66,83	32,972
088 guiding family members'	63,55	32,410
089 mentoring students	66,14	33,309
090 supporting students	70,11	30,999
091 evaluating education outcomes with patient	68,16	32,922
092 evaluating education outcomes with family	63,17	33,730
093 evaluating of education outcomes with team	69,83	33,044
094 improving of skills	81,16	25,499
095 developing patient education	68,68	32,317
096 programs for new nurses	63,24	36,009
097 coaching others	70,50	31,837
098 analysing patient's well-being	72,07	30,236
099 patient 's need for emotional support	72,32	29,595
100 family's need for emotional support	65,12	32,322
101 expert help for patient	66,36	33,463
102 coaching other staff in observation	74,14	29,581
103 coaching other staff in use of equipment	76,84	27,748
104 developing care documentation	74,80	28,352
105 dangerous for life situations	82,75	21,485
106 prioritising activites	80,32	24,928
107 acting in life-threatening situations	82,12	24,254
108 arranging debriefing sessions	75,99	28,223
109 coaching other team members	75,79	29,429
110 planning care with resources available	77,62	27,008
111 maintenance of care equipment	82,65	22,748
112 promoting team cooperation	80,68	25,386
113 planning activities flexibly	80,00	24,978
114 making decisions concerning particular situation	81,56	23,009
115 co-ordinating team	69,59	31,574
116 coaching team	75,94	27,523
117 updating written guidelines	67,82	30,716
118 consultation for team	69,76	32,499

119 utilising research findings in practice	71,84 29,361
120 evaluating patients outcomes	75,25 27,883
121 incorporating knowledge	72,16 29,851
122 contributing to further development	63,55 34,261
123 committed to care philosophy	69,44 32,653
124 identification of further development	70,23 32,144
125 evaluating care philosophy	64,75 33,788
126 evaluating patient satisfaction	71,31 30,313
127 utilising research findings in development	69,14 30,861
128 making proposals for development	67,55 31,651
129 ability to recognize colleagues' needs	74,70 26,630
130 understanding limits of resources	70,82 29,916
131 professional identification as resource	68,82 30,977
132 acting responsibly	69,48 31,133
133 familiar with organisation's policy	71,79 28,944
134 coordinating of student's mentoring	65,42 33,980
135 mentoring beginners	72,46 29,295
136 providing expertise for team	77,25 26,309
137 acting autonomously	76,90 28,143
138 guiding staff	69,77 31,688
139 incorporating new knowledge	76,85 27,181
140 ensuring smooth flow of care	76,00 27,151
141 taking care of myself	68,45 31,837
142 utilising IT	75,07 28,115
143 co-ordinating care	75,83 27,823
144 orchestrating the whole situation	79,96 24,442
145 giving feedback	79,41 24,371
146 developing care in teams	75,09 29,054
147 developing environment	77,19 26,727

Results of exploratory factor analysis of NCS, nurse data (n=218)

Items (shortened, not original) (© Meretoja)	Component												
	1	2	3	4	5	6	7	8	9	10	11	12	13
075 care planning					.744								
076 supporting patients	.533				.563								
077 evaluation of own philosophy	.539				.565								
078 modifying of care plan	.494				.553								
079 utilising nursing research findings	.583				.463								
080 developing the treatment culture	.493				.576								
081 decision making by values	.467				.410								
082 patient education needs	.626										.416		
083 time for patient training	.689												
084 patient education content	.729												
085 individualised patient education	.724												
086 co-ordinating patient education	.720												
087 family members' needs for guidance	.714												
088 guiding family members'	.755												
089 mentoring students	.709												
090 supporting students	.665												
091 evaluating education outcomes with patient	.798												
092 evaluating education outcomes with family	.755												
093 evaluating of education outcomes with team	.837												
094 improving of skills		.550											
095 developing patient education	.783												
096 programs for new nurses	.734												
097 coaching others	.493							.452					
098 analysing patient's well-being	.657												
099 patient 's need for emotional support	.648												
100 family's need for emotional support	.592												
101 expert help for patient	.537												.523
102 coaching other staff in observation		.568											
103 coaching other staff in use of equipment		.543											
104 developing care documentation		.547											
105 dangerous for life situations		.816											
106 prioritising activites		.751											
107 acting in life-threatening situations		.795											
108 arranging debriefing sessions		.414								.649			
109 coaching other team members		.415								.576			
110 planning care with resources available		.495	.480										
111 maintenance of care equipment		.723											
112 promoting team cooperation		.483								.455			
113 planning activities flexibly					.653								
114 making decisions concerning particular situation		.482			.497	.406							
115 co-ordinating team							.617						
116 coaching team							.688						
117 updating written guidelines										.736			

118 consultation for team			.551
119 utilising research findings in practice	.448	.463	
120 evaluating patients outcomes		.642	
121 incorporating knowledge	.407	.579	
122 contributing to further development	.496		
123 committed to care philosophy		.463	
124 identification of further development		.503	
125 evaluating care philosophy			.520
126 evaluating patient satisfaction			
127 utilising research findings in development	.729		
128 making proposals for development	.606		
129 ability to recognize colleagues' needs	.491		
130 understanding limits of resources	.716		
131 professional identification as resource	.770		
132 acting responsibly	.687		
133 familiar with organisation's policy		.496	
134 coordinating of student's mentoring		.524	
135 mentoring beginners		.657	
136 providing expertise for team		.569	
137 acting autonomously		.468	.412
138 guiding staff	.438		
139 incorporating new knowledge	.605		
140 ensuring smooth flow of care	.553		
141 taking care of myself	.588		
142 utilising IT	.727		
143 co-ordinating care	.611		
144 orchestrating the whole situation	.476	.446	
145 giving feedback	.511		
146 developing care in teams	.540		
147 developing environment	.560		

*Extraction method: Principal Component Analysis

**Rotation method: Varimax with Kaiser Normalization

Results of Confirmatory Factor analysis of NCS, nurse data (n=218)

Categories	Factors						
Items	1	2	3	4	5	6	7
Helping role (percentage of variance: 13.0, Cronbach's alpha: 0.92)							
075	.657						
076	.769						
077	.747						
078	.583						
079	.611						
080	.693						
081	.687						
Teaching-coaching (percentage of variance: 13.3, Cronbach's alpha: 0.96)							
082	.683						
083	.745						
084	.733	.423					
085	.643	.471					
086	.642	.472					
087		.685					
088		.702					
089		.714					
090		.661					
091	.446	.654					
092		.680					
093	.440	.715					
094			.497				
095	.459	.629					
096	.403	.615					
097		.462					
Diagnostic functions (percentage of variance: 4.2, Cronbach's alpha: 0.87)							
098	.491	.473					
099	.549	.444					
100		.572					
101		.613					
102			.621				
103			.651				
104			.551				
Managing situations (percentage of variance: 12.8, Cronbach's alpha: 0.91)							
105			.804				
106			.714				
107			.761				
108			.552				
109			.587				
110			.545				
111			.773				
112			.629				
Therapeutic interventions (percentage of variance: 7.0, Cronbach's alpha: 0.90)							
113						.630	

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114	.438		.659
115			.617
116		.461	.598
117	.501		
118	.456		.425
119		.449	
120			.556
121		.455	.498
122			.463
Ensuring quality (percentage of variance: 9.3, Cronbach's alpha: 0.88)			
123		.413	.543
124		.447	
125			.519
126	.417		.416
127		.696	
128		.697	
Work role (percentage of variance: 6.7, Cronbach's alpha: 0.95)			
129		.555	.450
130			.692
131			.711
132			.624
133			.514
134	.453		
135			.485
136		.458	.442
137			.410
138		.407	
139		.499	
140		.422	.413
141			.643
142			.663
143			.614
144		.509	.441
145		.533	
146			.520
147			.503
Total % of variance explained		66.3	

*Varimax rotation and Kaiser Normalization: 7-factor solution after principal factor analysis

**Used specific number (7) of factors. Factors loading below 0.40 excluded.

***Explanation of items with reference to factors see Appendices 17, 18.

Means and SDs of items of NES, nurse data (n=218)

Items (shortened, not original) (©Kuokkanen)	Mean	Std. Deviation
148 Respect for individuals	4,50	,746
149 Equity	4,39	,764
150 Honesty	4,39	,782
151 Mentally resourceful	3,85	,894
152 Courageous, assertive	3,88	,867
153 Able to act under pressure	3,44	,963
154 Broadminded, flexible	4,08	,778
155 Autonomous	4,15	,880
156 Has personal power	3,75	1,067
157 Competent	3,79	1,041
158 Competent	4,16	,729
159 Personally responsible	4,22	,880
160 Personally responsible	4,06	,819
161 Innovative, creative	3,65	,983
162 Enthusiastic promoter	3,86	1,054
163 Forward thinking	3,71	,966
164 Open-minded	3,85	,994
165 Respected by others	4,00	,838
166 Socially responsible	3,88	,884
167 Treats others with respect	4,26	,841
168 Acts justly	4,27	,802
169 Acts honestly	4,26	,795
170 Looks after own well-being	4,40	,726
171 Dares to say and act	4,23	,729
172 Acts effectively under pressure	4,15	,764
173 Acts flexibly	4,15	,812
174 Acts skilfully	4,25	,715
175 Acts independently	4,22	,883
176 Makes decisions	4,24	,821
177 Consults and teaches colleagues	3,73	,999
178 Consults and teaches colleagues	3,27	1,162
179 Consults and teaches colleagues	3,97	,893
180 Promotes new ideas at work	3,87	,991
181 Finds creative solutions	3,88	,924
182 Acts after planning, assesses effects	4,14	,744
183 discusses openly	4,29	,807
184 works for the common goal	3,92	,997
185 solves problems	4,08	,932
186 Shared values	3,92	,895

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187 Concerted care philosophy	4,24	,871
188 Esteem for others	3,96	,947
189 Delegated responsibilities	4,01	,892
190 Training	3,98	1,052
191 Position opportunities	3,90	1,007
192 Confidence	4,11	,786
193 Feedback	3,97	1,011
194 Access to information	3,84	1,067
195 Access to information	3,87	1,100
196 Continuity of work	4,02	,967
197 Evaluation and development	4,37	,772
198 Co-operation	4,15	,898
199 Co-operation	3,93	,971
200 Evaluation and development	4,06	,963
201 Collegial support	4,36	,818
202 Problem solving	3,97	1,089
203 Open ambience	4,08	1,015
204 Conflicting values	2,52	1,193
205 Conflicting values	2,64	1,085
206 Nullification	2,68	1,152
207 No concerted policy	2,53	1,327
208 Hierarchy	2,65	1,319
209 Authoritarian leadership	2,42	1,255
210 Distrust	2,36	1,215
211 Non- responsiveness	2,47	1,242
212 Lack of information	2,59	1,254
213 Lack of information	2,50	1,196
214 Short working periods	2,32	1,168
215 Resistance to innovation	2,35	1,162
216 Lack of co-operation	2,29	1,206
217 Unprogressiveness	2,77	1,361
218 Raising barricades	3,26	1,388
219 Controversy	2,54	1,311
220 Lack of openness	2,23	,485

Results of exploratory factor analysis of NES, nurse data (n=218)

Items (shortened, not original) (©Kuokkanen)	Component													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
148 Respect for individuals						.803								
149 Equity						.815								
150 Honesty						.614								
151 Mentally resourceful							.679							
152 Courageous, assertive							.626							
153 Able to act under pressure							.563							
154 Broadminded, flexible						.430								
155 Autonomous				.523										
156 Has personal power				.732										
157 Competent				.699										
158 Competent				.422										
159 Personally responsible					.756									
160 Personally responsible					.748									
161 Innovative, creative				.490	.497									
162 Enthusiastic promoter				.402										
163 Forward thinking							.417							
164 Open-minded							.451							
165 Respected by others									.403					
166 Socially responsible				.440										
167 Treats others with respect			.517											
168 Acts justly			.446										.513	
169 Acts honestly			.615											
170 Looks after own well-being			.724											
171 Dares to say and act			.714											
172 Acts effectively under pressure			.706											
173 Acts flexibly			.688											
174 Acts skilfully			.798											
175 Acts independently			.561											
176 Makes decisions			.633											
177 Consults and teaches colleagues				.632										
178 Consults and teaches colleagues				.666										
179 Consults and teaches colleagues					.591									
180 Promotes new ideas at work				.425						.544				
181 Finds creative solutions				.416										
182 Acts after planning, assesses effects			.493											
183 discusses openly			.433					.559						
184 works for the common goal								.678						
185 solves problems								.672						
186 Shared values	.414								.562					

Appendices

187 Concerted care philosophy	.498	.488	
<i>Appendix 21</i>			
188 Esteem for others	.700		
189 Delegated responsibilities	.692		
190 Training	.587		
191 Position opportunities	.636		
192 Confidence	.459		.461
193 Feedback	.673		
194 Access to information	.811		
195 Access to information	.832		
196 Continuity of work	.629		
197 Evaluation and development	.548		.412
198 Co-operation	.627		.592
199 Co-operation	.658		.423
200 Evaluation and development	.751		
201 Collegial support	.714		
202 Problem solving	.758		
203 Open ambience	.813		
204 Conflicting values	.564		.507
205 Conflicting values	.549		.666
206 Nullification	.586		.523
207 No concerted policy	.725		
208 Hierarchy	.666	-.403	
209 Authoritarian leadership	.797		
210 Distrust	.829		
211 Non- responsiveness	.880		
212 Lack of information	.882		
213 Lack of information	.886		
214 Short working periods	.789		
215 Resistance to innovation	.814		
216 Lack of co-operation	.797		
217 Unprogressiveness	.732		
218 Raising barricades	.446		.513
219 Controversy	.713		
220 Lack of openness	.691		

*Extraction method: Principal Component Analysis

**Rotation method: Varimax with Kaiser Normalization

Results of Confirmatory Factor analysis of NES, nurse data (n=218)

Categories	Component			
	1	2	3	4
Qualities of empowered nurse (percentage of variance: 10.4, Cronbach's alpha: 0.81)				
Moral principles				.727
Personal integrity	.738			
Expertise	.773			
Future-orientedness	.787			
Sociability	.718			
Performance of empowered nurse (percentage of variance: 12.8, Cronbach's alpha: 0.81)				
Moral principles				.732
Personal integrity	.509			.686
Expertise	.774			
Future-orientedness	.742			
Sociability	.533			.413
Empowerment promoting factors (percentage of variance: 14.4, Cronbach's alpha: 0.83)				
Moral principles		.681		.424
Personal integrity		.786		
Expertise		.865		
Future-orientedness		.820		
Sociability		.839		
Empowerment impeding factors (percentage of variance: 13.1, Cronbach's alpha: 0.76)				
Personal integrity			.891	
Expertise			.917	
Future-orientedness			.915	
Sociability			.819	
Total % of variance explained	50.7			

*Varimax rotation and Kaiser Normalization: 4-factor solution after principal factor analysis by categories. Factors loading below 0.40 excluded.