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Perceived quality of nursing care and patient education: a cross-sectional study of hospitalised surgical patients in Finland

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ABSTRACT

Objectives This study aims to analyse the relationship between patient education and the quality of surgical nursing care as perceived by patients. The background of the study lies in the importance of a patient-centred approach for both patient education and quality evaluation.

Design This was a cross-sectional descriptive correlational study with surgical patients.

Setting Data were collected in 2013 in one hospital district in Finland.

Participants 480 hospitalised surgical patients.

Methods The data were collected using two structured instruments: one measuring the perceived quality of nursing care experienced by patients (Good Nursing Care Scale) and one measuring the received knowledge of hospital patients (RKhp). Data were analysed statistically using descriptive and inferential statistics to describe the sample and study variables. Pearson's correlation coefficients were used to analyse the association between the scales.

Results Surgical hospital patients evaluated the level of the quality of nursing care as high; this was especially true with reference to the environment and staff characteristics, but not to collaboration with family members. Most (85%) of the patients had received sufficient knowledge preoperatively and they were familiar with the proceeding of their care and treatment after discharge; in particular, they had received bio-physiological knowledge, consisting of knowledge of the disease, symptoms and the physiological elements of care. The positive correlation between the perceived quality of surgical nursing care and received knowledge was strong, suggesting a positive relationship between patient education and improvement of the quality of nursing care.

Conclusions Based on the results, the quality of nursing care and patient education are interconnected. Thus, by improving patient education, the quality of nursing care can also be improved. It is particularly important to improve collaboration with family members and patients' own management strategies as well as the multidimensionality of educational knowledge.

Strengths and limitations of this study:

- The design allows a patient-centred approach to the connection between the quality of patient care and patient education, as emphasised in recent health-care strategies.
- The data were collected with valid and reliable instruments allowing comparison with earlier results and replication of the study in different clinical fields.
- The sample size is based on power analysis, but the response rate was difficult to define in the real-life context.
- The sample was collected within different surgical fields; generalisation of the results to a specific field would require new data.
- Patients' self-evaluation is one dimension in the evaluation of quality, and there is still a need to combine register data with these evaluations.

INTRODUCTION

The evaluation of the quality of surgical patients' care is a fundamental responsibility of professionals in surgical operative facilities. In this study, our special interest lies in the connection between the quality of nursing care and patient education as perceived by hospitalised surgical patients. Our theoretical assumption is that the higher the patients' perceptions of the knowledge received, the higher the perceived quality of surgical nursing care. Focus on patient education is thus key when it comes to improving the patient-centred quality of care. On the part of professionals, patient education requires a lot of time, competence to use different types of material, programmes and instruments, and skills to evaluate the empowerment of patients.[1 2] It is therefore important to analyse the relationship between educational activities and the quality of care.

In earlier literature, the importance of in-patients' perceptions of quality of care and their experiences has been identified.[3–6] Preoperative empowering information has been shown to improve the perceived perioperative quality of care,[7] and educational activities

are important for patient empowerment,[8] as has been shown among older people. Furthermore, patient education is important for reducing preoperative anxiety,[9] and it has a positive impact on professionals' performance.[10] Patient-centredness and knowledgeable professionals with good communication skills seem to have an influential role in the experienced quality of nursing care,[11] and there seems to be a connection between patient-centredness and health outcomes.[12]

In surgical care, many changes have influenced patient education in recent years, including an increase in ambulatory surgery, advances in anaesthesia and surgical techniques, new technological, educational alternatives,[13 14] and shorter hospitalisation times.[15] These changes indicate a need to support patients' self-empowerment to ensure the continuity of care and recovery at home.[16] However, nurse-to-patient ratios in acute surgical units indicate a limited time for patient education,[17 18] and the relationships between the quality of nursing care and different work-related factors are complicated.[19] At the same time, the important role of patient safety in the quality of care, the challenges linked to the quality of care[20] and the conceptual dimensions of quality[21] have been identified. Thus, there is a need to analyse the factors associated with quality, as also emphasised in health policies.[22 23]

The quality of nursing care as perceived by surgical patients has been assessed in earlier studies[11 19 24 25] while available instruments are reported in reviews.[26] Generally, three patient-centred perspectives can be identified. The first highlights patients' personal experience of care. The key factor is whether the experience has been positive, assessing patients' satisfaction,[27 28] the significance of patient education for satisfaction,[29] and associations between patient experience and the technical quality of care.[5] The second perspective highlights patients' assessment of the success of their care as well as quality ratings. For example, in a large survey,[17] hospitals were given quality ratings by patients, revealing variation between different countries: high ratings ranged from 35% in Spain to close to 60% in the USA, Switzerland, Finland and Ireland. In a Special Eurobarometer,[30] the overall quality of healthcare was mainly (71%) estimated as good by EU citizens. The third perspective highlights patients' evaluations of their empowerment and the use and control of their own resources during the care. In this study, the perceived quality of surgical nursing care is a combination of these three perspectives, based on an action-oriented approach to nursing care, consisting of the evaluation of the actor (ie, the nurse), the action or activities, the prerequisites of the action, environmental factors and the control experienced by the patients themselves.[24 31]

In surgical nursing, the focus has been on preoperative education[16 32] and the needs or expectations for knowledge.[33] The flow of information during the perioperative process is identified as a central component of the continuity of care[34]; higher levels of knowledge are associated with lower healthcare costs[35 36]; patient information is a fundamental factor for recovery at home,[37] improves pain management,[38] is one component in perceiving safety in surgical care,[3 16] can improve the self-care of surgical patients and their recovery at home,[37] decrease anxiety[9 16 33] and fear,[39] and improve quality of life.[40 41] Furthermore, educational activities have been included among quality factors[42] even though inpatient satisfaction did not appear to be influenced by the quality of the medical information. However, there are also conflicting results.[43 44]

The focus of research in surgical patient education varies. Most commonly, the focus is on the sufficiency of information or knowledge for surgical patients, methods of patient education and the effect of patient education on patients' recovery.[29] The provision of information is, however, inconsistent[29] and unmet patient information needs have been identified.[2 24 45–48] In other studies, patients required more anaesthetic information,[37] and a patient-centred emphatic approach produced satisfaction with the information received.[49] As for the content of education, surgical patients seem to receive mainly bio-physiological knowledge, such as knowledge about the disease, symptoms and the physiological elements of care.[1 2 33]

There is limited evidence about the connection between the perceived quality of surgical nursing care and patient education, which may be due to the complex nature of the concept of nursing care quality.[21] In our previous study, a connection was found between the perceived quality of internal-medical care of hospital patients and their education.[50] However, the nature of nursing care in internal medical facilities is different from surgical nursing care where hospitalisation times are shorter and recovery after the surgical procedure requires patients' own activities. In this study, surgical patients' education is assessed by the perceived level of received knowledge in the perioperative process. Received knowledge is defined[33 51] as the knowledge that is received from professionals, understood by patients and connected with the patients' own knowledge and action base. Thus, it is more than just information given by professionals: it is the knowledge that the patients have to experience.

The focus of this study is clinical: we aim to analyse whether the perceived quality of surgical nursing is connected with patient education. The following research questions will be addressed:

1. What is the level of the perceived quality of care among hospitalised surgical patients?
2. What is the level of received knowledge among hospitalised surgical patients?
3. What is the relationship between the level of the perceived quality of care and the level of received knowledge among hospitalised surgical patients?

METHODS

Design

This study used a cross-sectional, correlational design with surgical patients. Data were collected from hospitalised surgical patients before discharge in one university hospital district (out of five) in Finland. The hospital district is a large organisation responsible for the arrangement of specialised medical treatment and care. In university hospital districts, there is a high emphasis on acute care and research. Each university hospital has its own area of responsibility where they organise specialised treatment and care; this university district covers 869 447 citizens.[52]

Sample and data collection

The data were collected over a period of 12 weeks in 2013 (February–April) from hospitalised surgical patients. Patient education instructions and procedures are documented in the hospital district, and they are mainly considered to be uniform between the surgical units. The sample consisted of patients from eight different surgical units including all main areas of surgery (digestive, urology, orthopaedic, heart and thorax, gynaecological, eye and ear). The inclusion criteria for the patients were as follows: (1) over 16 years of age, (2) able to self-administer the instruments, (3) able to understand Finnish/Swedish (Swedish is the second national language in Finland) and (4) voluntary participation. For estimation of the sample size, a power analysis was performed for the Good Nursing Care Scale (GNCS). In the power analysis, an estimated effect size of level 0.1 (weak difference) was used in the calculations and 90% test power with significance level 0.05.

Power calculation is based on individual item (four levels) percentage distribution comparison using background variables, with effect size of level 0.1 (weak difference). With 90% power, significance level 0.05 and effect size of level 0.1 (weak difference), the minimum sample size is 245.

The data collection was performed in collaboration with voluntary contact nurses in the units trained by the researchers. The questionnaires with information letters were distributed to all eligible patients; 480 patients completed the instruments at the end of their hospital period and returned them in a closed envelope to a letterbox in their unit. Patients were expected to respond individually, without discussing with other patients and/or family members.

Instrumentation

The data were collected using two structured instruments: one measuring the perceived quality of nursing care experienced by patients, The Good Nursing Care Scale, GNCS, V.3 with 40 items,[31] and one measuring the received knowledge of hospital patients, RKhp, original version with 40 items.[53] The GNCS was originally developed for surgical patients. It is based on action theory of nursing and divided into seven quality categories: nurses' characteristics (actor, five items, eg, honest, careful and willingness to serve), nursing activities (activities, six items, eg, professional manner, informed about the treatment, encouraged and supported mentally), preconditions for care (preconditions, five items, eg, nurses' knowledge and skills are up to date, evidence-based knowledge and patients' good is a priority), nursing environment (environment, five items, eg, safety, preventing the spread of infections, identity checks and personal integrity), proceeding of the nursing process (process, six items, eg, how fluent is the nursing process, collaboration between different care organisations and informing the patient about discharging), patients' management strategies (outcomes, seven items, eg, patients' opinions are taken into account, patients are aware of the treatment and financial costs and benefits) and collaboration with family members (collaboration, six items, eg, family members are informed, heard, supported and participate in care). The GNCS has been used among surgical patients[24 54] and in different countries.[55 56] The items are rated on a four-point scale from 'fully agree' (4) to 'fully disagree' (1); the option 'cannot say' (0) is also given. Average scores of 1.0–1.5 indicate the very low quality of care, 1.6–2.0 low, 2.1–2.5 fairly low, 2.6–3.0 fairly high, 3.1–3.5 high and 3.6–4.0 very high quality of care; 'high quality' was considered a sufficient level. The validity of the Good Nursing Care scale has been stated in earlier studies; this has to do with both the content (eg,[24 50 57]) and construct validity (eg,[24 57 58]). The internal consistency reliability by using Cronbach's alpha coefficients is sufficient, ranging between 0.7 and 0.96[50 57] in the subcategories and between 0.81 and 0.94[54 56] for the whole scale.

The RKhp is based on the concept of patient education as an empowering nursing intervention.[33 53] It is divided into six dimensions: knowledge about bio-physiological (eight items, eg, illness and symptoms), functional (eight items, eg, mobility, nutrition and sleep), experiential (three items, eg emotions and experiences), ethical (nine items, eg, patient rights and confidentiality), social (six items, eg, significant others and patient organisations) and financial (six items, eg, costs and benefits) domains. The RKhp has been validated among surgical and internal-medical hospital patients.[2 50] The items are rated on a four-point scale from 'fully agree' (4) to 'fully disagree' (1); the option 'cannot say' (0) is also provided. Higher scores reflect more knowledge received; expecting 3 (agree) being the sufficient level. The validity of the RKhp has been confirmed in earlier studies; this has to do with both the content (eg[24 50 57]) and construct validity (eg,[24 57 58]). The internal consistency reliability by using Cronbach's alpha coefficients is sufficient, ranging between 0.89 and 0.95 for the six dimensions and between 0.93[2] and 0.80[33] for the total scale.

The background factors connected with the two instruments included patients' sociodemographic (age, gender, level of education, work status and living arrangement) and hospitalisation-related (type of admission, reason for

a hospital stay, earlier visit in the hospital and length of hospital stay) factors and patients' health status.

Ethical issues

The study was conducted in accordance with ethical principles.[59] Ethical approval was obtained from the Ethical Committee of the University of Turku (Code 2/2013) and permission for the study was granted according to the procedures of the hospital district. Using written information letters, patients were informed about the purpose of the study and the principles of voluntary and anonymous participation. Returning the questionnaires was regarded as voluntary consent by the patients and no separate informed consent was required. No personal identification information was collected and the researchers did not have access to the patients' personal hospital files. Data were handled confidentially in the university database, allowing access only to researchers, and stored in an electronic data matrix for potential secondary analyses.

Data analysis

Data were analysed statistically using the SPSS V.21.0. Descriptive statistics (frequencies, percentages, means and SD) were used to describe the sample and study variables. Altogether seven sum variables in the GNCS were formulated based on the theoretical dimensions of the scale, with 'high quality' (mean 3.1–3.5) considered as sufficient. Pearson's correlation coefficients were used to analyse the association between the scales. Multifactor analysis of variance was computed to analyse the amount of variance in the perceived quality of surgical nursing care (GNCS) explained by background factors and the knowledge received (RKhp). The background factors used in the model were sociodemographic, hospitalisation-related and patients' health status and general questions about knowledge received (yes/no), having knowledge about the progress of treatment and care (yes/no). A p value of ≤0.05 was considered statistically significant. Cronbach's alpha coefficient was used to analyse the internal consistency of both instruments.

Patient and public involvement

The informants in this study were surgical patients and the main research interest was in their perspectives on the knowledge and quality of care. The instrument used, the GOOD NURSING CARE-SCALE, was originally developed in collaboration with patients and includes content that is relevant to them. Patients were not involved in the recruitment of respondents. Patients' views of the instruments as well as their understandability were reviewed in connection with the piloting of the instruments. The implementation of the results is important for patients because the aim is to improve the quality of care. The professionals in each collaborating unit will be informed of the results to enable discussion and consideration of the meaning of the results in the units in question. Furthermore, open lectures will be arranged as part of continuing education for professionals, and the main patient association will also be informed of the results through their own journal. In the data collection, no patient advisers were used.

RESULTS

Demographics of surgical patients

The sample size of the patients was 480 (=n), their average age was 59 (SD 17) years and a slight majority were men (58%, n=277). Their educational level was mainly vocational qualification (49%) or a comprehensive school (35%). More than half of the patients were retirees (53%) and most of them co-habited with other family members (75%). A majority had elective admission (67%) and previous experiences of hospitalisation (87%), even in the same hospital (60%). The average length of hospital stay was 4.4 (SD 4.2) days. Most patients had a surgical procedure or operation during their stay (78%). At the moment of responding to the instruments, most patients evaluated their own health status as good (42%) or fairly good (47%) (table 1).

Surgical patients' perceptions of the quality of nursing care

In general, the patients perceived the quality of surgical nursing as high (GNCS, mean 3.47, table 2). The highest level of quality was perceived in environmental (mean 3.84) and staff characteristics (mean 3.82), while the lowest was reported in collaboration with family members (mean 3.00) and in support of patients' own management strategies (mean 3.55).

Surgical patients' perceptions of received knowledge

In general, most of the patients estimated the received knowledge to be sufficient (n=324, 80% of those who responded to the question) and they were familiar with the proceeding of their care and treatment after discharge (390, 85%). On the other hand, a considerable proportion (n=71, 15%) of the respondents were not familiar with their care and treatment process even though the data were collected just prior to discharge from the hospital.

On the received knowledge of hospital patients scale, the mean of total scale (RKhp, mean 3.33, table 2) indicated a high level of received knowledge, being highest in the bio-physiological domain (mean 3.47) and the lowest in the area of financial knowledge (mean 2.58) where the number of respondents was also clearly lower than in the bio-physiological domain.

Relationship between the quality of surgical nursing care and received knowledge

There was a strong correlation between the perceived quality of surgical nursing care (GNCS) and received knowledge (RKhp) (r=0.666, p<0.001): the higher the perceived level of received knowledge, the higher the assessments of the quality of surgical nursing care.

Univariate analysis of variance was computed for the sociodemographic, hospitalisation-related, health

Table 1 Sample characteristics (n=480)

Variable	n	%	Mean	SD	Min	Max
Age	473		59.3	17.0	16	93
Gender						
Male	277	58				
Female	200	42				
Education						
Comprehensive school	169	36				
Matriculation examination	19	4				
Vocational qualification	237	50				
University degree	48	10				
Work status						
Employed	173	36				
Unemployed	24	5				
Retired	255	53				
Stay-at-home mom/dad	7	1				
Student	18	4				
Living arrangement						
Live alone	115	24				
Live with family member(s)	359	76				
Type of admission into hospital/unit						
Admitted as an emergency patient	135	29				
Admitted as an elective patient	323	71				
First time at hospital generally						
Yes	50	11				
No	420	89				
First time in this hospital						
Yes	177	38				
No	286	62				
Days spent in this hospital/unit	448		4.4	4.2	1	42
Reason for hospitalisation						
An examination	28	3				
Surgical treatment, procedures	373	39				
Medication and/or infusion therapy	60	6				
Guidance/counselling visit due to the illness	481	51				
Other	6	1				
Any chronic disease						
No	234	51				
Yes	228	49				
Current state of health in comparison with normal state of health						
Excellent	34	7				
Good	196	42				
Fairly good	216	47				
Poor	17	4				

status and knowledge-related factors in association with the perceived quality of surgical nursing care (GNCs) (table 3). The model was statistically significant (F=16.7, df 22, p<0.001), explaining 55% of the variance in the quality of surgical nursing care (R^2=0.554). Statistically significant predictors were the level of received knowledge in general (RKhp total, F=19.5, df 1, p<0.001), whether the respondent had received sufficient knowledge before hospitalisation (F=7.6, df 1), p=0.006), having knowledge about how care and treatment proceed after hospitalisation F=14.6, df 1, p<0.001), and perceived health status (F=3.06, df 3, p=0.028).

DISCUSSION

In this study, we analysed the possible relationship between the perceived quality of surgical nursing care and the knowledge received by surgical hospital patients. The study was based on the assumption that a higher level of received knowledge would also improve the perceived quality of surgical nursing care. There is no systematic research evidence for this connection even though patient education is a natural part of nursing care and we have already identified this connection among internal medical patients.[50] Thus, by demonstrating the connection in different clinical fields, in this case, among surgical patients, strategic planning of patient education can be incorporated into many existing quality assurance programmes. The results strengthened our assumption and indicated the existence of a connection between patient education and the quality of care. The finding is clinically important due to the many changes that have taken place in the surgical field in recent years, such as shorter hospitalisation times[15] and reduction in the time nurses have for patient education. Our results provide evidence that by improving the quality of patient education, we can also improve the quality of care. However, the improvement would require new technological, educational solutions, support for patients' self-management and postoperative recovery at home, as well as analysis of patients' knowledge expectations preoperatively.[2 32] Traditionally, self-management and patient empowerment have been discussed more with reference to medical patients with chronic conditions (such as patients with diabetes,

Table 2 Descriptive statistics of the scales

Scale	Items	n	Mean (SD)	Cronbach's α
GNCS	40	476	3.47 (0.34)	0.940
Nursing staff characteristics	5	470	3.82 (0.35)	0.773
Nursing activities	6	467	3.70 (0.43)	0.839
Preconditions for care	5	453	3.72 (0.44)	0.797
Nursing environment	5	466	3.84 (0.30)	0.660
Proceeding of the nursing process	6	459	3.70 (0.40)	0.709
Patients' management strategies	7	447	3.55 (0.50)	0.842
Collaboration with family members	6	316	3.00 (0.93)	0.940
RKhp	40	438	3.33 (0.74)	0.987
Bio-physiological	8	431	3.47 (0.63)	0.913
Functional	8	408	3.40 (0.72)	0.949
Experiential	3	335	3.09 (0.96)	0.914
Ethical	9	374	3.11 (0.86)	0.958
Social	6	327	2.83 (1.05)	0.949
Financial	6	259	2.58 (1.11)	0.975

Observed range 1–4 (n = 480).
GNCS, Good Nursing Care Scale; RKhp, received knowledge of hospital patient.

asthma or rheumatoid arthritis), but short hospital stays make it relevant for surgical patients as well.

Surgical patients' perceptions of the quality of nursing care

The perceived quality of surgical nursing care seems to be high. The highest level of quality was seen in the environment and characteristics of the staff, confirming earlier findings.[54–57] Quality improvement is still needed in collaboration with family members, as also indicated by previous studies,[60] and in support of patients' own management strategies.[2] It may be that collaboration with family members was not identified as being so important among this sample of adult patients even though they have to have a significant other to accompany them home from the hospital and stay over the first night. In the future, however, the increase in the number of older patients will mean special emphasis on family collaboration.[8] In the internal medical field, typically involving older patients, we have already identified the connection between the quality of care and patient education.[50]

Surgical patients' perceptions of received knowledge

The knowledge received by patients was mainly sufficient. In this study, received knowledge is not only the information given, but also the patients' experience of having it. The sufficiency of knowledge was true particularly in the bio-physiological field, but less so in the financial field. In the future, the number of surgical patients with multidimensional health problems will increase, creating a need for empowering multidimensional knowledge.[61] This also includes financial knowledge, the area where the least amount of knowledge was received in this sample. This result is in line with earlier studies. For example, the highest difference between received and expected knowledge was seen in the financial dimension,[2] and patients' knowledge expectations on financial issues are not fully met.[62] In the future, patients in many countries will have to understand the financial components of their care, and in order to empower patients, nurses have to provide them with a relevant amount of financial knowledge, or at least make sure that patients are aware of where they can find information. Knowledge about financial issues may have a positive impact on both patients' decision-making and the healthcare system.[62]

Traditionally, the emphasis on surgical care has been on preoperative education.[63] However, our results indicate a need to establish a continuous educational programme for improving the quality of surgical nursing care. This could be designed as a mobile application; for example, allowing patients to follow it throughout the perioperative process.[14] It is clear that patients' perceived health status is also of significance in the educational process, as was also the case in our data.

The limitations of this study have to do with the sample and data collection. The sample, consisting of different types of surgical patients, was collected in one university hospital district (out of five). Surgical procedures share sufficient similarities to combine the patients into the same dataset; the educational procedures and written educational materials are largely similar. This assumption can be criticised. Our aim, however, was not to compare patient education in different clinical fields but to analyse the connection between education and perceived quality of care. In many countries, there is increasingly a mix of surgical patients in the same wards,

Table 3 Multifactor analysis of variance of patients' (n=480) sociodemographic, hospitalisation-related, health status and knowledge-related variables on perceived quality of surgical nursing care

Variable	F (df)*	P value
Model	16.68 (22)	<0.001
Intercept	438.69 (1)	<0.001
Sociodemographic variables		
Age	0.34 (1)	0.563
Gender	0.00 (1)	0.992
Education	0.75 (3)	0.526
Work status	0.84 (4)	0.500
Living arrangement	0.40 (1)	0.528
Hospitalisation-related variables		
Type of admission	0.01 (2)	0.989
First time in hospital	0.02 (1)	0.895
First time in this hospital	0.70 (1)	0.403
The length of hospital stay	0.30 (1)	0.583
Health status-related variables		
Any chronic disease(s)	1.15 (1)	0.285
Perceived health status in general	3.06 (3)	0.028
Knowledge-related variables		
Sufficient knowledge about care and treatment	7.59 (1)	0.006
Knowledge about proceeding of care and treatment	14.56 (1)	<0.001
RKhp total score	159.51 (1)	<0.001

R-square=0.554; adjusted R-square=0.521.
*F-value, df df with p value.

which poses a challenge for nurses to recognise the similarities and individual needs in the patients' educational expectations. The sample corresponds rather well with the average age of patients and the average length of hospital stay in Finland,[64] 4.0 days in the department of digestive surgery and 3.0 days in the department of urology, and the patients' health status was rather good at the time of responding. New samples are needed to analyse the connection between the quality of care and patient education in more specific patient groups, as well as to improve international comparisons. International comparisons in the field of orthopaedic patient education already show a lot of similarities, but also differences in patients' expectations and received knowledge[2] and in educational practices.[65] Analysis of health literacy and/or individual learning strategies of patients should also be included in further analyses to deepen our understanding of the cognitive processes of patients.

Furthermore, there were some limitations to the process. For example, we were not able to control the completion of the instruments. The aim was for the patients to respond individually at the end of their hospital stay, but it is possible that they may have collaborated with other patients and/or significant others. The missing response rate and problems in handling missing data are also a limitation. We planned to control the missing data (eg, patients' refusals), but in real life, we did not succeed in this due to the hectic clinical practice and high flow of patients. However, the sample size was based on power analysis and was sufficiently large.

In the data collection, we used two previously validated instruments (eg,[2 56]). In this sample, the internal consistency of the instruments was acceptable for both the GNCS (Cronbach's 0.66–0.94) and the RKhp (Cronbach's alpha 0.91–0.98) subscales, similarly as in previous studies. The content of the instrument consists of the main areas of nursing care and content validity has been estimated by professionals in different countries.[2 57] All the patients meeting inclusion criteria had a possibility to complete the instruments. Both of the instruments are self-reports by patients, which is a fundamental criterion for patient-centred care and treatment.[11 12] In the future, there is a need to combine patients' perceptions with healthcare organisations' register data as well as with patient-peers' and healthcare professionals' observations. It would also be relevant to include organisational elements in the analyses of patient education. These would include elements such as organisational policies, educational guidelines and quality assurance programmes. It would be particularly important to analyse the significance of policies on adequate staffing of nurses for patient education.

CONCLUSIONS

Based on the results of this study, the relationship between the quality of surgical nursing care and received knowledge as perceived by surgical hospital patients was confirmed. This finding supports a study conducted among medical patients.[50] In the future, there is a need for more detailed research including, for example, specific knowledge about educational activities implemented by nurses and the learning strategies used by patients. The results also provide evidence to establish intervention studies for improving the connection. Furthermore, the educational competence of nurses and graduating nursing students warrants future analysis of health literacy levels.

Clinical resources: The Empowering Patient Education research program in patient education http://www.utu.fi/en/units/med/units/hoitotiede/research/projects/epe/Pages/home.aspx.

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