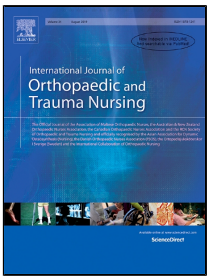
Journal Pre-proof



The Quality of counseling of rehabilitation evaluated by surgery patients at university hospital – cross sectional study.

Pirjo Kaakinen, Merja Meriläinen, Pauliina Putila, Maria Kääriäinen

PII:	S1878-1241(18)30100-X
DOI:	https://doi.org/10.1016/j.ijotn.2019.100717
Article Number:	100717
Reference:	IJOTN 100717
To appear in:	*International Journal of Orthopaedic and Trauma Nursing*
Received Date:	21 September 2018
Accepted Date:	06 September 2019

Please cite this article as: Pirjo Kaakinen, Merja Meriläinen, Pauliina Putila, Maria Kääriäinen, The Quality of counseling of rehabilitation evaluated by surgery patients at university hospital – cross sectional study., *International Journal of Orthopaedic and Trauma Nursing* (2019), https://doi.org/10.1016/j.ijotn.2019.100717

Title: The Quality of counseling of rehabilitation evaluated by surgery patients at university hospital – cross sectional study.

Authors:
Pirjo Kaakinen
PhD, RN, University lecturer
University of Oulu, Research unit of Nursing Science and Health Management, Finland.
Medical Research Center, Oulu, Finland
E-mail: pirjo.kaakinen@oulu.fi

Merja Meriläinen
PhD, RN, Chief Nursing Officer
Oulu University Hospital, Finland
Medical Research Center Oulu, Finland
E-mail:merja.merilainen@ppshp.fi

Pauliina Putila
M.Sc. Ward Manager,
Department of Physical Medicine and Rehabilitation, Oulu University Hospital, Finland
E-mail: Pauliina.putila@ppshp.fi

Maria Kääriäinen
PhD, RN, Professor, Consultant
University of Oulu, Research unit of Nursing Science and Health Management, Finland.
Medical Research Center, Oulu, Finland
University Hospital of Oulu, Finland.
E-mail: maria.kaariainen@oulu.fi

Correspondence:
Pirjo Kaakinen, PhD, RN, University lecturer, University of Oulu, Research unit of Nursing Science and Health Management, Finland.
Aapistie 5A Box 5000, 90014 University of Oulu, Finland
Telephone: +358294485616, Fax: +35885375661
E-mail: pirjo.kaakinen@oulu.fi

Acknowledgements: none

Conflict interest and funding: none declared

Author Contributions:
Study design: MK, PK, MM, PP. Data collection and analysis: PK, MM, PP. Manuscript preparation: PK, MM, PP, MK Final approval PK, MK, MM

Introduction

The orthopaedic patients need quality post-operative counselling before discharge for successful surgery operations. Patient counselling is essential for rehabilitation after surgery. In fact, orthopaedic patients who receive sufficient rehabilitation are more adherent to post-operative care regimens and can apply the knowledge and skills they receive during rehabilitation (Kadda et al. 2015, Cabilan et al. 2016, Green et al. 2016, Kyngäs et al. 2017). Quality post-operative counselling optimizes orthopaedic patient recovery (Knier et al. 2015, Kaakinen et al. 2017, Kyngäs et al. 2017) and helps reduce overall healthcare services workload (Smith et al. 2006). Therefore, hospitals should contemplate the quality of post-operative rehabilitation counselling for orthopaedic patients. This paper, reports factors which predict a good quality of counselling for orthopaedic patients in university hospital.

Background.

In this study, 'patient counselling' is defined according to a publication by Kääriäinen (2007) and is related to the content of counselling, implementation and benefits of the counselling. It is also connection to counselling materials and methods (Kääriäinen et al. 2011, Kajula et al. 2015, Rajala et al. 2017). Post-operative orthopaedic patients need counselling on: the management of daily activities at home, including sitting, personal hygiene, walking, and climbing stairs (Demir & Erdil 2013, Winn et al. 2015, Hansen et al. 2016, Maujean et al. 2018); use of mobility aids (Gilmartin 2007, Heikkinen et al. 2007); and administration of analgesics (Johansson et al. 2005, Raitanen et al. 2015). Orthopaedic patients need counselling on expected post-surgery symptoms like pain and fatigue, and on potential complications including side effects of the surgery like wound infection and breathing and/or sleeping difficulties (Demir & Erdil 2013, Cabilan et al. 2016, Hansen et al. 2016). Post-operation symptoms and complications may retard rehabilitation at home. After surgery, many orthopaedic patients expect their post-surgery circumstances to remain similar to their pre-surgery circumstances; as a result, they may have unmet expectations for their rehabilitation (Hansen et al. 2016). Orthopaedic patients need individual counselling and opportunities for participation in care-related decision-making to avoid these unmet expectations.

Rehabilitation counselling should be planned, implemented in a patient-centered and goal-oriented manner (Kääriäinen, 2007, Kääriäinen et al. 2010, Kaakinen et al. 2012, Mattila 2014, Kyngäs et al. 2017, Rajala et al. 2017). In other words, rehabilitation counselling should fit orthopaedic patients'

needs and lifestyle (Bensing et al. 2013). It should account for orthopaedic patients' social and cultural background and previous knowledge of post-operative rehabilitation (Kääriäinen & Kyngäs, 2010, Kaakinen et al. 2012, Raitanen et al. 2015). Patients who receive rehabilitation counselling often gain knowledge of their disease and its treatment. However, they also need emotional support because recovery often causes emotional stresses like worry and fear (Demir & Erdil 2013, Ortiz et al. 2015, Hansen et al. 2016). Patient-centered counselling provides opportunities for orthopaedic patient discussions with a therapist (Knier et al. 2015, Hansen et al. 2016, Kyngäs et al. 2017, Maujean et al. 2018) and for receipt of feedback in a positive atmosphere (Kääriäinen, 2007, Mattila 2014, Rajala et al. 2017). Involvement of post-operative orthopaedic patients' family members in rehabilitation counselling sessions helps improve patient self-care at home (Heikkinen et al. 2007, Rankinen et al. 2007, Raitanen et al. 2015).

Counselling is beneficial for orthopaedic patients themselves and for their rehabilitation, resulting in, for example, better quality of life and reduced complications (Fredericks et al. 2010, Esoga & Seidl 2012, Patel et al. 2015, Kaakinen et al. 2017, Rajala et al. 2017). Adequate counselling related to the disease, rehabilitation, and home recovery can help orthopaedic patients assess and act on changes in their wellbeing (Gilmartin 2007, Flanagan 2009, Ortoleva 2010, Knier et al. 2015). In fact, pre-surgery counselling may reduce acute admission to rehabilitation wards (Cabilan et al. 2016).

Assurance of quality rehabilitative counselling requires adequate resources, including staff with sufficient skills and knowledge (Mitchell 2010, Lipponen et al. 2013, Raitanen et al. 2015, Wouda & van de Wiel 2015). Counselling duration should be adequate for the orthopaedic patient (Ernesäter et al. 2009, Nikula et al. 2014, Raitanen et al. 2015, Rajala et al. 2017). An insufficient counselling duration creates a challenge for the therapist to motivate the orthopaedic patient towards rehabilitation (Knottenbelt et al. 2007, Flanagan 2009, Kivelä et al. 2014). Appropriate counselling resources, including facilities and the therapist's knowledge, skills, and attitudes, are required for implementation of quality rehabilitative counselling (Kääriäinen et al. 2011, Lipponen et al. 2013, Raitanen et al. 2015). According to Kääriäinen et al. (2011), the therapist must motivate patients, facilitate their understanding of goal-oriented rehabilitation, and provide feedback on progress to see changes in patients' lifestyle and in adherence to a post-operative care regimen. Counselling is primarily implemented orally, together with written materials (Tse & So 2008, Kääriäinen et al. 2011, Kaakinen et al. 2012, Mattila et al. 2014, Rajala et al. 2017). Additionally, rehabilitation is also implemented using virtual games, videotapes, and personal instruction for demonstrations (Raitanen

et al. 2015, Lee et al. 2016, Thomson et al. 2016, Rajala et al. 2017). However, we do not know enough factors that predict quality counselling for rehabilitation of orthopaedic patients after surgery.

The purpose of this study was to determine the factors that predict quality counselling for orthopaedic patients in university hospital during rehabilitation. The research questions were: 1) What quality of counselling is given to orthopaedic patients during rehabilitation? 2) What factors predict quality rehabilitation counselling of orthopaedic patients?

Methods

Design and data collection

This was a cross-sectional and exploratory study based on quantitative approach. Data were collected in spring 2012 using The Quality of Counselling Instrument (CQI©, Kääriäinen 2007). This has been developed to determine the quality of patient counselling in four main areas (Kääriäinen 2007). The instrument has 8 background questions and 66 items in four main areas: content of counselling (16 items), implementation of counselling (28 items), benefits of counselling (13 items), and resources (9 items) of counselling. All four main areas were measured using a 5-point Likert scale ranging from one (disagreement) to five (agreement).

A principal component analysis (PCA) was conducted to analyze relationships among large numbers of variables (Polit & Beck 2011). Sum variables were formatted based on factor analysis and result of the PCA were similar to previous studies (Kääriäinen 2007, Kääriäinen 2010, Kaakinen et al. 2013, Kaakinen et al. 2017). Three factors were identified from the CQI content items: knowledge about surgery impact on daily life, follow-up care, and rehabilitation counselling. Four factors were formed from the CQI implementation items: preplanned counselling, patient-centered counselling, interaction during counselling, and counselling methods. The CQI benefit items led to formation of the following factors: impact of patients' knowledge of rehabilitation and patients' attitudes. The CQI resources items led to formation of the following factors: staff knowledge and skills, and counselling materials.

The CQI validity and reliability were considered good. Cronbach's alpha values (0.8-0.9) indicated high internal consistency of the instrument (Kääriäinen 2007, Kääriäinen et al. 2011, Kaakinen et al.

2017, Rajala et al. 2017). In this study, content validity of the instrument was assessed by nursing staff (n=6), a medical doctor (n=1) and head nurses (n=2) in the rehabilitation units.

Participants

Study participants comprised a convenience sample of orthopaedic patients (n=448) who were treated in wards (n=15) and outpatient clinics (n=13) at the university hospital and this hospital have 40 000-rehabilitation patients per year. The inclusion criteria: 1) patients have orthopaedic treatment, 2) physiotherapist or occupational therapist has counsel patient 3) were Finnish speaking and 4) 18 years of age or older. There was no limitation of frequency of visit in the hospital. Patients with diagnosed mental disorders such as dementia or serious memory disorder were excluded. Orthopaedic patients were asked to complete the CQI by therapist when decision of discharge was made. When discharge decision is made, it means that orthopaedic patients have a sufficient knowledge of rehabilitation and patients be able to cope self-care at home. Four hundred and forty-eight questionnaires were returned. Forty questionnaires were rejected for being incomplete (i.e. less than 50% of the questions had been answered). The final participants were 408.

Ethical considerations

The study was approved by the Medical Director of the Physical Medicine and Rehabilitation units. In Finland, according to the Medical Research Act (488/1999) and amendments to this law (295/2004), this kind of study does not require the approval of the healthcare organization's ethics committee. All respondents received a cover letter that emphasized voluntary participation in the study and presented the opportunity to obtain additional information. Participants returned their anonymous questionnaires in a sealed envelope by box. Return of the questionnaire was considered voluntary participation.

Data analysis

Predictive Analytics Software (PASW version 22.0) was used for data analysis. Data were analyzed by descriptive statistics and multivariate logistic regression analysis. Differences between background variables and sum variables were evaluated using the Pearson Chi-Squared test. Differences in the means of scores between groups (background and sum variables) were evaluated using t-test, with a relatively normal distribution.

Sum variables were categorized into two categories based on mean, histogram, and boxplot. Values ranging from 1.00 to 3.99 represented inadequate counselling and values ranging from 4.00 to 5.00 represented adequate counselling. Based on calculated correlation coefficients, binary logistic regression was performed for all eight-background variables and the patient counselling quality components: 'content of counselling', 'implementation of counselling', 'benefit of counselling' and 'counselling materials and methods'. The odds ratio (OR) indicates the value of the logistic regression model; here, it represents the likelihood of good- or poor-quality counselling. Results of the binary logistic regression models are presented with OR, 95% confidence intervals (CI) and p-values. Results with statistical significance ($p < 0.05$) are presented.

Results

Background information of participants

Fifty-six percent of the respondents were women, and the mean age of all respondents was 53 years (range 16 – 86 years). Sixty-nine respondents lived with a family member or roommate. Seventy-three percent of respondents had scheduled ongoing hospital visits and 23% have an emergency visit. The average disease duration was five years. Thirty-one percent of responders had a low education level as elementary or vocational education. (Table 2.)

Counselling content and predictors of quality content

The quality of counselling content provided to orthopaedic patients during rehabilitation included the following three sum variables: knowledge of surgery impact on daily life, follow-up care, and rehabilitation counselling (Table 1). Forty-eight percent of respondents were dissatisfied with their knowledge about the impact of surgery on their daily lives after counselling. Women ($p=0.003$) and respondents under 50 years of age ($p<0.000$) were more dissatisfied than men and older participants. About 77% of orthopaedic respondents were aware of follow-up care after counselling, but 23% more women than men believed that their awareness of follow-up care was insufficient ($p=0.009$). The majority of respondents (92%) received adequate information of rehabilitation. (Table 3.) All three sum variables, *knowledge of surgery impact on daily life, follow-up care, and rehabilitation counselling* (Table 4), were associated with the quality of counselling content.

Follow-up care, counselling materials, rehabilitation counselling, counselling impact of patient attitude, and patient-centered counselling all predicted the likelihood that the orthopaedic patient received good quality *knowledge of surgery impact on daily life* for 43% of the counselling during rehabilitation. (Table 4). Follow-up care was the most powerful predictor. Participants who received counselling of follow-up were 5.0 –fold likely to receive counselling surgery impact of daily life than those who did not receive such counselling. (Table 4). Knowledge of surgery impact on daily life, preplanned counselling, rehabilitation counselling, and patient-centered counselling predicted the likelihood of quality *follow-up care* for 38% of counselling during rehabilitation (Table 4). Knowledge of surgery impacts on daily life was the most powerful predictor. Orthopaedic patients who received counselling on this factor were 4.40 –fold likely to have received counselling about follow-up care than those who counselling did not include knowledge of surgery impact on daily life. (Table 4). Knowledge of surgery impact on daily life, counselling materials, and follow-up care predicted the likelihood of good quality *rehabilitation counselling* for 26% of the counselling. (Table 4). Knowledge of surgery impacts on daily life was the most powerful predictor. Orthopaedic patients whose counselling included this variable were 5.74 –fold likely to have received rehabilitation counselling than those who counselling did not include knowledge of surgery impact on daily life. (Table 4).

Implementation of counselling and predictors of quality implementation

Implementation of counselling included the following four sum variables: preplanned counselling, patient-centered counselling, interaction during counselling, and counselling methods (table 1). Eighty-three percent of respondents experienced preplanned counselling, but 51% did not receive patient-centered counselling. All orthopaedic respondents (97%) felt that interaction during counselling was adequate although men and women had different experiences with this variable. Men interacted more than women did (t=2.28, p=0.023) during counselling. Ninety-three percent of respondents believed that appropriate methods were used to implement counselling, although more women than men (t=-2.08, p=0.038) found the methods used unsatisfactory. (Table 3.) These four sum variables *preplanned counselling, patient-centered counselling, interaction during counselling, and counselling methods* (Table 5) were associated with the quality of counselling implementation.

Interaction during counselling, patient-centered counselling, knowledge about the impact of surgery on daily life, and follow-up care predicted the likelihood of an orthopaedic patient receiving *preplanned counselling* about rehabilitation for 46% of the counselling during rehabilitation (Table

5). Interaction during counselling was the most powerful predictor. Orthopaedic patients who experienced active interaction during counselling were 12.73 –fold likely to have received preplanned counselling than those who interaction was inactive. (Table 5). Preplanned counselling, counselling impact of patients' attitudes, knowledge of surgery impact on daily life, and follow-up care predicted the likelihood of a *patient-centered counselling* experience for 42% of the counselling during rehabilitation (Table 5). Preplanned counselling was the most powerful predictor. Orthopaedic patients who received preplanned counselling were 9.22 –fold likely to have received patient-centered counselling than those whose counselling was not preplanned. (Table 5). Staff knowledge and skills, preplanned counselling, and counselling impact of patients' attitude predict the likelihood of good *interaction during counselling* for 43% of counselling. (Table 5). Knowledge and skills of the staff were the most powerful predictor. Orthopaedic patients whose counselling is implemented by staff with adequate knowledge and skills were 15.23 –fold likely to have received counselling implemented that involved good interaction. (Table 5). Counselling materials, follow-up care, preplanned counselling, and the orthopaedic patient's knowledge of rehabilitation predicted the likelihood that a patient's counselling involved adequate *counselling methods* for 35% of the counselling during rehabilitation (Table 5). The most powerful predictor was counselling materials. Participants who counselling was implemented with good materials were 3.73 –fold likely to have received counselling in adequate methods than those whose counselling materials were poor. (Table 5).

Benefits of counselling and predictors of quality counselling benefits

Benefit of counselling include two sum variables: impact of patients' knowledge of rehabilitation and impact of patient's attitudes toward rehabilitation (table 1). Most of respondents (98%) counselling have impact orthopaedic patients knowledge of rehabilitation. Patients' knowledge of rehabilitation (p=0.023) and attitude (p=0.004) after counselling was less satisfactory in respondents younger than 50 years of age than in older respondents. Only one in four (20%) felt that counselling did not led to positive attitudes toward rehabilitation. (Table 3.) These two sum variables, *patient knowledge of rehabilitation* and *patient attitude* were considered benefits of counselling.

Counselling impact of attitudes, counselling method, and rehabilitation counselling predicted the likelihood of improved *patient knowledge of rehabilitation* in 41% of counselling during rehabilitation (Table 6). Counselling impact of orthopaedic patient attitude towards counselling was the most powerful predictor. Patients' whose counselling was impacts of patients' attitude were 18.81

–fold likely to have received counselling that impact of their knowledge of rehabilitation than those whose counselling was not such impact. (Table 6). Counselling impact of patients' knowledge of rehabilitation, patient-centered counselling, and knowledge surgery impact on daily life predicted likelihood counselling *impact of patients' attitude* in 42% of counselling during rehabilitation (Table 6). The most powerful predictor was counselling improved patient knowledge of rehabilitation. Orthopaedic patients whose counselling improved their knowledge of rehabilitation were 13.90 –fold likely to have received counselling that impact patient attitude toward rehabilitation than those whose counselling have not impact of knowledge of rehabilitation. (Table 6).

Counselling resources and predictors of quality counselling resources

Most of orthopaedic patients were satisfied counselling resources, as staff knowledge and skills (99%) and counselling materials (88%). Orthopaedic patients with durations of disease shorter than five years were more dissatisfied with staff's knowledge and skills than those with disease durations longer than five years (t=-2.25, p=0.025) (table 3). These two sum variables, *knowledge and skills of the staff* and *counselling materials* were associated with quality counselling resources (Table 7).

Knowledge of surgery impact on daily life, interaction during counselling, counselling methods, and rehabilitation counselling predicted the likelihood of the use of *quality counselling materials* for 28% of counselling during rehabilitation (Table 7). The most powerful predictor was knowledge of surgery impact on daily life. The orthopaedic participants who received knowledge of surgery impacts on daily life were 6.22 –fold likely to have received counselling in sufficient materials than those whose counselling did not include knowledge of surgery impacts. (Table 7)

Discussion

Previously published studies suggest that patients need counselling to support treatment and self-care (Kivelä et al. 2014, Kaakinen et al. 2017, Rajala et al. 2017). For this study, meaningful counselling for orthopaedic patients led to their awareness of the various effects of surgery on their daily lives and of helpful tactics for managing these effects. Previous studies confirm our findings (Wessels et al. 2010, Black et al. 2014, Kähkönen et al. 2016). Surgery effects of daily life was also one of predictors of good quality of counselling content. Orthopaedic patients have specific rehabilitation counselling needs related to, for example, use of mobility aids (Gilmartin 2007) and use of analgesics (Stomberg et al. 2008). Successful orthopaedic patient discharge is beneficial to all parties and is one

indicator of hospital quality. Burke et al. (2013) created the ideal transition-of-care framework in which one central idea is to counsel patients to promote self-management of care.

In this study, most of orthopaedic patients rehabilitation counselling were preplanned. Although counselling for most rehabilitation patients in this study was preplanned, it was not always patient-centered, and individual needs were not always accounted for. Several published studies report similar results (Stromberg et al. 2007, Kääriäinen & Kyngäs 2010, Kaakinen et al. 2017). This observation is cause for concern because orthopaedic patients must care for themselves after discharge (Suhonen & Leino-Kilpi 2006). However, preplanned counselling was one factor, which predict a good quality of implementation of counselling by patient. Well-planned counselling is essential for successful rehabilitation and leads to meaningfully complex interpersonal interactions (Harman et al. 2011).

Successful therapist-patient communication is patient-centered and incorporates active listening (Jensen et al. 2000). Orthopaedic patients in our study considered interaction during counselling good. Fredericks and Yau (2017) reported that individualized patient counselling is effective in reducing hospital readmission rates, anxiety and depression, while enhancing performance of self-care behaviors and cognitive mental health functioning. Patients and therapists co-construct a relationship with each other from multiple repertoires through verbal and nonverbal communication. This allows the therapist to make decisions on behalf of the patient, or to fully-cooperate with the patient and share the decision-making (Laitinen-Väänänen et al. 2008).

In general, therapists frequently engage in counselling interventions with patients (Harman et al. 2011). According to this study, the most powerful predictor of quality interaction during counselling was the compound variable comprising staff knowledge and skills. However, the kind of knowledge and competence that therapists have is unclear. Therefore, it is not obvious, what kind of competence and knowledge therapists have. Ferrus-Torres et al. (2011) concluded that patients are more satisfied with care when they can participate in decision-making about and get involved with their care. Therapists who are trained to deliver patient counselling interventions can provide counselling that results in changes to patient behavior. For patient behavior changes to occur, therapists should be taught how to use open communication strategies to facilitate individualized patient counselling sessions (Fredericks & Yau 2017).

This study identified two benefits of rehabilitation counselling: positive attitude towards rehabilitation and improved knowledge of rehabilitation. Orthopaedic patient counselling is a critical

health intervention for promoting recovery and behavioral changes that support self-care. However, this counselling is often ineffective (Johansson et. al. 2004, Fredericks & Yau 2017). Patients need individually-tailored teaching and counselling strategies to ensure the quality and usefulness of the information they receive post-discharge. Counselling encourages patients to take a central role in their recovery by promoting sustainable, long-term, positive outcomes (Cooke et.al. 2016).

The therapist-patient relationship is complex, but has key influence on therapeutic outcomes, and is valued by patients and therapists alike. Thus, current trend is decreasing length of rehabilitation as well as hospitals stays, but orthopaedic patients' needs always information how do manage their daily activities after surgery treatment.

Study strengths and limitations

One strength of this study is that the data were collected using a quality instrument with high rates of validity and reliability (Kääriäinen 2007, Kääriäinen et al, 2011, Kaakinen et al. 2013,2017, Rajala et al. 2017). The PCA demonstrated good construct validity and the Cronbach's alpha values (0.95 – 0.62) indicated good internal consistency. The orthopaedic patients response rate was high (91%) (Polit & Beck 2011). Orthopaedic patients received a cover letter with the questionnaire to motivate them to respond, thereby minimizing a low response rate. In addition, the questionnaires were distributed to multiple rehabilitation units. The questionnaire was distributed after orthopaedic patients received rehabilitation counselling but prior to their discharge so that patients had the opportunity to complete and return it before leaving for home. There are two main limitation of this study; 40 of 448 questionnaires were rejected for being incomplete and data were collected six years ago. Receipt of incomplete questionnaires may have been due to the instrument's large number of items, which may have contributed to reduce responses on each questionnaire. Although data were collected a few years ago, is know that patient counselling is still inadequate nowadays.

Conclusion

This study demonstrated that, counselling of rehabilitation after surgery was adequate, although orthopaedic patients' knowledge of surgery impact on daily life and patient-centered counselling of rehabilitation was insufficient. Counselling of rehabilitation was implemented in a good interaction by orthopaedic patients. Counselling of rehabilitation provides the benefits of orthopaedic patient's well-being in daily life. According this study counselling of rehabilitation should be taken into

account needs of orthopaedic people below 40 years, women and those who disease duration is under five years. Study identified several factors, which predict a good quality of rehabilitation counselling at the hospital.

References

Bensing J, Rimondini M, Visser A., 2013 What patients want. Patient Counselling and Counselling 90:287-290.

Black, N., Varaganum, M., Hutchings, A., 2014 Relationship between reported experience (PREMs) and patient reported outcomes (PROMs) in elective surgery. BMJ Quality and Safety 23:534-542.

Bruke, R., E., Kripalani, S., Vasilevski, E.F., Schnipper, J.L., 2013 Moving beyond readmission penalties: creating an ideal process to improve transitional care. Journal of Hospital Medicine 8:102-109.

Cabilan, C-J., Hines, S., Munday, J., 2016 The impact of prehabilitation on postoperative functional status, healthcare utilization, pain and quality of life: A systematic review. Orthopaedic Nursing 35:224–237.

Cooke, M., Walker, R., Aitken, L.M., Freeman, A., Pavey, S., Cantrill R., 2015 Pre-operative self-efficacy counselling vs. usual care for patients undergoing joint replacement surgery: a pilot randomised controlled trial. Scandinavian Journal of Caring Sciences 30:74–82.

Demir, S., Erdil, F., 2013 Effectiveness of home monitoring according to the Model of Living in hip replacement surgery patients Journal of Clinical Nursing 22:1226–1241.

Ernesäter, A., Holmström, I., Engström, M., 2009 Telenurses' experiences of working with computerized decision support: supporting, inhibiting and quality improving. Journal of Advanced Nursing 65:1074–1083.

Esoga, P., Seidl, K., 2012 Best practices in orthopaedic inpatient care. Orthopaedic Nursing 31:236–240.

Falvey, J.R., Burke, R.E., Malone, D., Ridgeway, K.J., McManus, B.M., Stevens-Lapsley, J.E., 2016 Role of physical therapists in reducing hospital readmissions: Optimizing outcomes for older adults during care transitions from hospital to community. Physical Therapy 96:1125–1134.

Ferrus-Torres E., Valmaseda-Castellon E., Berini-Aytes L., Gay-Escoda C., 2011 Informed consent in oral surgery, the value of written information. Journal of Oral Maxillofacial Surgery 69:54-58.

Flanagan, J., Jones, D., 2009 High-frequency nursing diagnoses following same-day knee arthroscopy. International Journal of Nursing Terminologies & Classifications 20: 89–95.

Fredericks, S., Sepali, G., Sidani, S., Wan, T., 2010 Postoperative Patient Counselling: A Systematic Review. Clinical Nursing Research 19:144–164.

Fredericks, S., Yau, T., 2017 Clinical effectiveness of individual patient counselling in heart surgery patients: A Systematic review and meta-analysis. International Journal of Nursing Studies 65:44–53.

Gilmartin, J., 2007 Contemporary day surgery: patients' experience of discharge and recovery. Journal of Clinical Nursing 16:1109–1117.

Green, A., Gilbert, P., Scott-Young, M., Abbott, A., 2016 Physiotherapeutic rehabilitation following lumbar total disc replacement: a retrospective study. Physiotherapy Research International 21:*155–163.*

Hamström, N., Kankkunen, P., Suominen, T., Meretoja, R., 2012 Short hospital stays and new demands for nurse competencies. International Journal of Nursing Practice 18:501–508.

Hansen, T., Zwisler, A., Berg, S., Sibilitz, L., Buus, N., Lee, A., 2016 Cardiac rehabilitation patients' perspectives on the recovery following heart valve surgery: a narrative analysis. Journal of Advanced Nursing 72:1097–1108.

Harman, K., Bassett, R., Fenety, A., Hones, A.M., 2011 Client Counselling: Communative interaction between Physiotherapist and Clients with Subacute Low Back Pain in Private Practice. Physiotherapy Canada 63:212–223.

Heikkinen, K., Leino-Kilpi, H., Hiltunen, A., Johansson, K., Kaljonen, A., Rankinen, S., Virtanen, H., Salanterä, S., 2007 Ambulatory orthopaedic surgery patients' knowledge expectations and perceptions of received knowledge. Journal of Advanced Nursing 6: 270–278.

Johansson, K., Nuutila, L., Virtanen, H., Katajisto, J., Salanterä, S., 2005 Preoperative counselling for orthopaedic patients: systematic review. Journal of Advanced Nursing 50:212–223.

Johansson, K., Salanterä, S., Heikkinen, K., Kuusisto, A., Virtanen, H., Leino-Kilpi, H., 2004 Surgical patient counselling: assessing the interventions and exploring the outcomes from experimental and quasi-experimental studies from 1990 to 2003. Clinical Effectiveness in Nursing 8:81–92.

Kaakinen, P., Patala-Pudas, L., Kyngäs, H., Kääriäinen, M., 2012 Counselling chronically ill adults in the healthcare setting: An integrative literature review. Journal of Nursing Counselling and Practice 2:185–202.

Kaakinen, P., Kyngäs, H., Kääriäinen, M., 2013 Predictors of good-quality counselling from the perspective of hospitalized chronically ill adults. Journal of Clinical Nursing 22: 2704–*27*13.

Kaakinen, P., Ervasti, H., Kääriäinen, M., 2017 Quality of counselling in knee and joint arthroscopy patient in day surgery**.** International Journal of Orthopaedic and Trauma Nursing 24:12–20.

Kadda, O., Kotanidou, A., Manginas, A., Stavridis, G., Nanas, S., Panagiotakos, D., 2015 Lifestyle intervention and one-year prognosis of patients following open-heart surgery: a randomised clinical trial. Journal of Clinical Nursing 24:1611–1621.

Kajula, O., Kääriäinen, M., Moilanen, J., Kyngäs, H., 2015 The quality of genetic counselling and connected factors as evaluated by male BRCA1/2 mutation carriers in Finland. Journal of Genetic Counselling 9:1–9.

Kivelä, K., Elo, S., Kyngäs, H., Kääriäinen, M., 2014 The effects of health coaching on adult patients with chronic diseases: a systematic review. Patient counselling and Counselling 97:147–157.

Knier, S., Stichler, J., Feber, L., Catterall, K., 2015 Patients' perceptions of the quality of discharge teaching and readiness for discharge. Rehabilitation Nursing 40:30–39.

Knottenbelt, G., van der Westhuizen, J., Griffith, N., 2007 Postoperative analgesia and discharge criteria for day surgery. Anaesthesia and Intensive Care Medicine 8:122–125.

Kähkönen, O., Kankkunen, P., Miettinen, H., Lamidi, M-L., Saaranen, T., 2016 Perceived social support following percutaneous coronary intervention is a crucial factor in patients with coronary heart disease. Journal of Clinical Nursing 26:1264–1280.

Kääriäinen, M., 2007 The quality of counselling: the development of a hypothetical model. (Finnish). Academic Dissertation. Acta Universitatis Ouluensis D 937. Universtiy of Oulu

Kääriäinen, M., Kyngäs, H., 2010 The quality of patient counselling evaluated by the health personnel. Scandinavian Journal of Caring Sciences 24:548–556.

Kyngäs, H., Kanste, O., Patala-Pudas, L., Kaakinen, P., 2017 COPD-Patients adherence to care and quality of counselling. Journal of Nursing Counselling and Practice 7:32–39.

Kääriäinen, M., Kukkurainen, M-L., Kyngäs, H. Karppinen, L., 2011 Improving the quality of rheumatoid arthritis patient's counselling using written information. Musculoskeletal Care 9:19–24.

Laitinen-Väänänen, S., Talvitie, U., Luukka, M., 2008 Construction of the client in physiotherapy student´s practical learning sessions: a discourse analytic study. Learning in Health and Social Care 7:2–11.

Lee, M., Suh, D., Son, J., Kim, J., Eun, S.D., Yoon, B.C., 2016 Patient perspectives on virtual reality-based rehabilitation after knee surgery: Importance of level of difficulty. Journal of Rehabilitation Research and Development 53:239–252.

Lipponen, K., Kanste, O., Kyngäs, H., 2013 The development of patient counselling: experience of collaborative work between special and primary care in Finland. Open Journal of Nursing 3:101–107.

Mattila, E., Kaunonen, M., Aalto, P., Åstedt-Kurki, P., 2014 The method of nursing support in hospital and patients' and family members' experiences of the effectiveness of the support. Scandinavian Journal of Caring Sciences 28:305–314.

Maujean A., Sterling J., Sterling M., 2018 What information do patients need following a whiplash injury? The perspectives of patients and physiotherapists. Disability and Rehabilitation 40:1135–1141.

Mitchell M., 2010 A patient-centred approach to day surgery nursing. Nursing Standard 24:40–46.

Nikula, J., Kaakinen, P., Kyngäs, H., Kääriäinen, M., 2014 The quality of telephone counselling in primary healthcare assessed by nurses. Nursing Evidence 12:4–13.

Ortiz J., Wang S., Elayda MA., Tolpin DA., 2015 Preoperative patient counselling: Can we improve satisfaction and reduce anxiety? Revista Brasileira de Anestesiologia 65:7-13.

Ortoleva, C., 2010 An approach to consistent patient counselling. AORN Journal 92:437–444.

Patel, N., Stone, M., Hadjiconstantinou, M., Hilesb, S., Troughton, J., Martin-Stacey, L., Daly, H., Carey, M., Khulpateea, A., 2015 Using an interactive DVD about type 2 diabetes and insulin therapy in a UK South Asian community and in patient counselling and healthcare provider training. Patient Counselling and Counselling 98:1123–1130.

Polit, D.F., Beck, C.T., 2011. Nursing Research. Generating and assessing evidence for nursing practice. International Edition. 9th revised international ed. Lippincott Williams and Wilkins.

Raitanen, K., Kylmä, J., Paavilainen, E., 2015 Short-term patient and family counselling for acute health change – an integrative literature review. Clinical Nursing Studies 3:96–104.

Rajala M., Kaakinen P., Fordell M., Kääriäinen M., 2017 The Quality of Patient Counselling in Day Surgery by Adult Patients. American Society of PeriAnesthesia 33:177–187.

Rankinen, S., Salanterä, S., Heikkinen, K., Johansson, K., Kaljonen, A., Virtanen, H., Leino-Kilpi, H., 2007 Expectations and received knowledge by surgical patients. International Journal for Quality in Health Care 19:113–119.

Suhonen, R., Leino-Kilpi, H., 2006 Adult surgical patients and the information provided to them by nurses: A literature review. Patient Counselling and Counselling 61:5–15.

Smith I., Cooke T., Jackson I., Fitzpatrick R., Rising to the challenges of achieving day surgery targets. Anaesthesia 61:1191-1199.

Stomberg MW., Segerdahl M., Rawal N., Jakobsson J., Brattwall M., 2008 Clinical practice and routines for day surgery in Sweden: Implications for improvement in nursing interventions. Journal of Perianesthesia Nursing 23:311-320.

Thomson, S., Jukes, C., Lewis, J., 2016 Rehabilitation following surgical repair of the rotator cuff: a systematic review. Physiotherapy 102:20–28.

Tse, K., So, W.K., 2008 Nurses' perceptions of preoperative teaching for ambulatory surgical patients. Journal of Advanced Nursing 63:619–25.

Wessels, H., de Graeff, A., Wynia, K., de Heus, M., Kruitwagen, L.J.J., Wotjer, T.G:j., Teunissen, C.C.M., Voest, E.E., 2010 Gender-Related Needs and Preferences in Cancer Care Indicate the Need for an Individualized Approach to Cancer Patients. The Oncologist 15:648–655.

Winn, K., Ozanne, E., Sepucha, K., 2015 Measuring patient-centered care: An updated systematic review of how studies define and report concordance between patients' preferences and medical treatments. Patient Counselling and Counselling 98:811–821.

Wouda, J., van de Wiel, H., 2015 Supervisors and residents' patient-counselling competency in challenging outpatient consultations. Patient Counselling and Counselling 98:1084–1091.

Table 1. Sum variables, amount of items, Cronbach's alpha values and total variance.

Sum variable name	Amount of items	Cronbach's alpha	Total variance %
Content of patient counselling			66.7
Knowledge of impact of surgery on daily life	12	0.86	
Follow-up care	4	0.75	
Rehabilitation counselling	4	0.72	
Implementation of patient counselling			56.1
Preplanned counselling	8	0.95	
Patient-centered counselling	7	0.93	
Interaction during counselling	6	0.92	
Counselling methods	4	0.77	
Benefit of counselling			69.6
Impact of patients' knowledge of rehabilitation	7	0.91	
Impact of patients' attitude	5	0.91	
Patient counselling resources			54.6
Staff knowledge and skill	5	0.76	
Counselling materials	4	0.62	

Table 2. Background information of participants (n=408)

	n	%	Mean (range)
Sex (n=404)			
Female	226	56	
Male	178	44	
Marital status (n=403)			
Single	122	30	
Live together	281	70	
Age (n=395)			**53 year (16-86 year)**
Education (n=400)			
Elementary education	129	32	
Vocational education	91	23	
Bachelor's degree	121	30	
Master degree	44	11	
Other	15	4	
Duration of disease (n=388)			**5 year (1month-79year)**
Type of hospital visit (n=394)			
Planned admission	307	78	
Emergency visit	87	22	
Length of stay at hospital (n=389)			**3 days (1-87 day)**

Table 3. The sum variables measuring quality of rehabilitation counselling and statistically significant background variables.

Sum variable name	Good		Poor		p-value
	n	%	n	%	
Content of patient counselling					
Knowledge of impact of surgery in daily life	212	52	192	48	0.003* 0.000**
Follow-up care	311	77	93	23	0.009*
Counselling of rehabilitation	372	92	32	8	
Implementation of patient counselling					
Planning of the patient counselling	335	83	69	17	
Patient-centered patient counselling	196	49	208	51	
Interaction of patient counselling	391	97	13	3	0.34*/0.023≠
Counselling methods	374	93	30	7	0.46*/0.038≠
Benefit of patient counselling					
Impact of patients' knowledge of rehabilitation	370	92	34	8	0.023**
Impact of patients' attitude	322	80	82	20	0.004**
Patient counselling resources					
Staff knowledge and skill	399	99	5	1	0.025##
Counselling materials	366	88	48	12	

*Chi-Square test: gender *, age **; t-test: gender≠, duration of disease##

Table 4. Predictors of good-quality counselling content.

	OR	B	95% Cl	Wald	p	Nagelkerke R Square
Knowledge of surgery impact on daily life						43%
Follow-up care						
good	5.00	1.609	2.527/9.880	21.389	.002	
poor	1					
Counselling materials						
good	4.82	1.573	1.772/13.106	9.490	.002	
poor	1					
Rehabilitation counselling						
good	4.64	1.535	1.201/17.920	4.953	.026	
poor	1					
Impact of patients' attitude						
good	3.74	1.319	1.852/7.549	13.539	.000	
poor	1					
Patient-centered counselling						
good	3.36	1.211	2.040/5.527	22.685	.000	
poor	1					
Follow-up care						38%
Knowledge of surgery impacts on daily life						
good	4.40	1.482	2.230/8.687	18.248	.000	
poor	1					
Preplanned counselling						
good	3.68	1.302	1.940/6.970	15.933	.000	
poor	1					
Rehabilitation counselling						
good	2.95	1.083	1.261/6.923	6.217	.013	
poor	1					
Patient-centered counselling						

good	2.57	.944	1.293/5.113	7.247	.007
poor	1				
Rehabilitation counselling					26%
Knowledge of surgery impacts on daily life					
good	5.74	1.747	1.574/20.913	7.007	.008
poor	1				
Counselling materials					
good	3.56	1.269	1.532/8.253	8.725	.003
poor	1				
Follow-up care					
Good	2.97	1.090	1.292/6.846	6.562	.010
poor	1				

Table 5. Predictors of good quality of implemented counselling.

	OR	B	95% Cl	Wald	p	Nagelkerke R Square
Preplanned counselling						46%
Interaction during counselling						
good	12.73	2.544	2.294/70.623	8.467	.004	
poor	1					
Patient centered-counselling						
good	11.41	2.435	3.370/38.654	15.304	.000	
poor	1					
Knowledge of surgery impact on daily life						
good	3.96	1.376	1.669/9.386	9.748	.002	
poor	1					
Follow-up care						
good	3.60	1.280	1.867/6.924	14.644	.000	
poor	1					
Patient-centered counselling						42%
Preplanned counselling						
good	9.22	2.221	2.686/31.648	12.459	.000	
poor	1					
Counselling impact of patients' attitude						
good	5.92	1.778	2.588/13.537	17.750	.000	
poor	1					
Knowledge of surgery impact on daily life						
good	3.03	1.107	1.826/5.014	18.453	.000	
poor	1					
Follow-up care						
good	2.73	1.006	1.360/5.496	7.972	.005	

poor	1					
Interaction during counselling						43%
Staff knowledge and skills						
good	15:23	2.723	1.683/137.770	5.873	.015	
poor	1					
Preplanned counselling						
good	11.98	2.483	2.320/61.899	8.787	.003	
poor	1					
Counselling impact of patients attitude						
good	8.92	2.189	1.703/46.758	6.708	.010	
poor	1					
Counselling methods						35%
Counselling materials						
good	3.73	1.317	1.472/9.469	7.694	.006	
poor	1					
Follow-up care						
good	3.61	1.282	1.376/9.444	6.814	.009	
poor	1					
Preplanned counselling						
good	3.39	1.220	1.284/8.937	6.076	.014	
poor	1					
Impact of patient's knowledge of rehabilitation						
good	3.34	1.207	1.194/9.367	5.275	.022	
poor	1					

Table 6. Predictors of good counselling benefit.

	OR	B	95% Cl	Wald	p	Nagelkerke R Square
Counselling impacts of knowledge of rehabilitation						41%
Counselling impact of attitude						
good	18.81	2.934	7.509/47.111	39.233	.000	
poor	1					
Counselling method						
good	5.96	1..785	2.007/17.690	10.333	.001	
poor	1					
Rehabilitation counselling						
good	3.19	1.162	1.038/9.839	4.101	.043	
poor	1					
Counselling impact of patients' attitude						42%
Counselling impacts of knowledge of rehabilitation						
good	13.90	2.632	5.177/37.304	27.289	.000	
poor	1					
Patient-centered counselling						
good	7.50	2.015	3.243/17.366	22.165	.000	
poor	1					
Knowledge of surgery impact on daily life						
good	3.10	1.131	1.550/6.190	10.246	.001	
poor	1					

Table 7. Predictors of good quality of counselling resources.

	OR	B	95% Cl	Wald	p	Nagelkerke R Square
Counselling materials						28%
Knowledge of surgery impact on daily life						
good	6.22	1.828	2.487 / 15.555	15.271	.000	
poor	1					
Interaction during counselling						
good	4.57	1.519	1.226 / 17.029	5.122	.024	
poor	1					
Counselling methods						
good	3.39	1.220	1.359 / 8.433	6.862	.009	
poor	1					
Rehabilitation counselling						
good	3.35	1.210	1.386 / 8.120	7.199	.007	
poor	1					

Conflict of Interest

This manuscript any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work must be disclosed. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding.

Thanking you,

Pirjo Kaakinen

Ethical Statement

The study was approved by the Medical Director of the Physical Medicine and Rehabilitation units.

Financial disclosure,

In this study, there are no financial disclosure