



# Quality of pain counselling for orthopaedic patients in the hospital: A cross-sectional study

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## ABSTRACT

**Background:** Earlier studies demonstrate that pain counselling for orthopaedic patients benefits quality of life and adherence to care.

**Aim:** The aim of this study was to describe the quality of pain counselling for orthopaedic patients in a Finnish central hospital.

**Methods:** A cross-sectional design was used. Data were collected from orthopaedic patients (n = 71) using the Quality of Counselling Instrument (CQI) and analysed using descriptive statistics including frequencies and percentages.

**Findings:** Most participants were women (67%), and the mean age was 52 years. Non-pharmacological pain relief was rated as inadequate (69%). Counselling of pain treatment was satisfactory for about 38% of orthopaedic patients, but 20% of participants had not received medication counselling. Pain counselling was not always patient-centered (50%), nor was interaction (48%) and goal-oriented counselling (49%). Staff skills and knowledge of orthopaedic patients' pain counselling was satisfactory, although there were differences between patients with/without previous experience (p = 0.047) and different education (p = 0.008).

**Conclusion:** Pain counselling is an important part of orthopaedic patients' treatment and healing processes. This study identified that there is lack of use of non-pharmacological pain relief, and counselling of pain should be implemented in a more patient-centered way. Inpatient counselling should use more personalised approaches with diverse counselling methods.

## 1. Introduction

According to Hällfors et al. (2018), the most common reason for contacting a hospital after discharge is unclear pain medication. Orthopaedic patients usually stay a short time in hospital, so counselling of pain and medication after orthopaedic treatment is essential. The International Association for the Study of Pain (International Association, 2020) defines pain as an unpleasant emotional experience that is associated with actual or potential tissue damage. It is an individual experience which affect patients' biological, psychological and social factors. Many studies and research reviews considering pain assessment and treatment show that regular assessment is essential in pain management (Ahmadi et al., 2016; Small and Laycock, 2020). Several pain assessment tools have been developed to make pain assessment more effective for healthcare staff and patients (Robbins et al., 2009; Wyld et al., 2013).

The most widely used tools are the Visual Analogue Scale (VAS), Verbal Rating Scale (VRS) and Numerical Rating Scale (NRS) (Hawker et al., 2011, Finnish Current Care Guideline, 2016; Delgado et al., 2018). To improve pain counselling for orthopedic patients, in addition to the assessment of pain, it is important to identify the gap between actual counselling and patients' perceptions of it. This paper reports the quality of pain counselling of orthopaedic patients in hospital.

## 2. Background

According to the World Health Organization (World Health Organization (WHO), 2018), Organization for Economic Co-operation and Development (OECD) and the World Bank, quality health services are needed in every country in the world. Healthcare services must be cost-effective and provide an equitable patient-centered service in the

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best possible way. The most important indicators of healthcare services are patients' own assessments of the quality of care. In Finland, according to the Act of Patients' Status and Rights (785/1992) patients have a right to high quality care and counselling regarding their disease.

In nursing science and nursing, counselling is equated with patient education, guidance, information, teaching and advice. In this study counselling is seen to be interactive, including a two-way communication process between healthcare staff and patients. Counselling happens in a confidential atmosphere and the starting point is the needs of the patients. (Kääriäinen 2007; Kääriäinen and Kyngäs 2010). However, counselling is not simply being given instructions in which patients have a passive role, it is a goal-oriented dialogue between healthcare staff and the patient. In pain counselling in Finland, the structure and nature of counselling varied from planned pain counselling to occasional questions to patients in counselling sessions. In addition to pain assessments tools, patients want to describe pain in their own words and feel that using a pain scale alone is not enough (Eriksson et al., 2014). So, it is important for healthcare staff to have a successful dialogue with the orthopaedic patient, enabling them to identify the orthopaedic patient's individual pain and support also patients to take responsibility for their own pain management.

There is no generally accepted definition of what high quality patient counselling is and quality in nursing is thought of as a property or attribute that can have either positive or negative values. This study used the definition of good-quality counselling as Kääriäinen (2007) has presented it. This definition combines several elements: patient-centered, interactive and planned implementation, providing sufficient counselling. It has been implemented with adequate resources and has positive benefits for the patient. The good quality of counselling demands from healthcare staff teaching skills and knowledge about learning styles of patients (Raitanen et al., 2015).

Like in all counselling, the content of pain management should be tailored individually to each orthopedic patient, as pain management needs and knowledge are always individual and play a crucial role in the success of pain counselling (Eriksson et al., 2016; Specht et al., 2016). Often, counselling is started before the actual treatment or treatment period. For example, if an orthopedic patient has a pre-operative visit to the hospital, the nurse and surgeon will discuss with the patient the treatment, medication, and follow-up in advance. They also counsel the patient on future surgery and patients receive preliminary home care instructions. The aim of counselling is to develop self-care and decision-making skills related to the patient's treatment of the disease and to increase the patient's understanding of the pain and its treatment (Arvidsson et al., 2013).

An orthopaedic patient's age, sex, culture, emotions, and previous experiences of treatment can affect their pain experience. Anxiety and unexpected events during orthopaedic surgery and rehabilitation may also add to a patient's pain experience (Angelini et al., 2018). The effects of analgesia or nausea can hamper understanding of pain management counselling. Orthopaedic patients also need to know about other topics such as treatment, recovery time, and expected movement limitations. Involving a patient's family members in counselling helps them to better remember medications and pain counselling, possible complications, and wound care (Kyngäs et al., 2017; Kaakinen et al., 2012; Rajala et al., 2018). Experiencing pain is individual, but women are reported to suffer more postoperative pain and nausea after treatment than men (Guntinas-Lichius et al., 2014). Also, patients have less anxiety if they know that postoperative pain is part of the orthopaedic procedure (Angelini et al., 2018).

The content of pain counselling should include postoperative pain management and medication (Kennedy et al., 2017; Angelini et al., 2018). Physical activity counselling helps to manage pain (Angelini et al., 2018) and adequate counselling regarding medication ensures patients maintain their physical activity (Rion and Kautz, 2016). Counselling on complementary and alternative methods of pain management, such as using a cold or hot towel and positioning also support

pain management. In some patients, touch or massage therapy can ease pain and relaxation therapy can also have a pain-relieving effect (Mann and Carr, 2006; Hökkä et al., 2014).

A patient-centered approach should be included in pain counselling (Kennedy et al., 2017; Angelini et al., 2018). Interaction between orthopaedic patients and healthcare staff (Rajala et al., 2018) is confidential and encourages patients to ask questions about pain management and symptoms. Consideration of individual needs and a patient's background improves confidence in healthcare staff's professionalism (Kennedy et al., 2017; Angelini et al., 2018).

Good quality pain counselling also has benefits for quality of life. It motivates self-care and adherence to orthopaedic treatment and helps patients understand the meaning of counselling (Kääriäinen, 2007; Kyngäs et al., 2017; Kaakinen et al., 2017, Oikarinen et al., 2017). Pre- and post-operative pain counselling strengthens patients' satisfaction with care (Renholm et al., 2014), reduces fear of orthopaedic surgery, and activates patients' self-care relating to pain management (O'Donnell, 2015; Best et al., 2018). Counselling also increases orthopaedic patients' awareness of different pain management techniques, promotes faster recovery (O'Donnell, 2015; Best et al., 2018) and lowers their VAS-scale scores (Porras-González et al., 2015; Angelini et al., 2018).

Written instructions are often used to support verbal counselling (Best et al., 2018) but, nowadays, technology is also used to aid counselling (Eloranta et al., 2016), including videos, Internet, and telephone education (Kaakinen et al., 2016, Jin et al., 2019). Orthopaedic patients also have access to a lot of information about orthopaedic surgery from family members, friends, and the Internet. Accurate information and patient-centered counselling are, therefore, important to avoid false information. Thus, healthcare staff need professional skills to conduct counselling (Kennedy et al., 2017).

Although orthopaedic patients' pain management has been studied extensively during the last few decades, it is still a challenging area (Wu and Raja, 2011). To improve pain counselling for surgery patients, it is important to identify the gap between actual counselling and patients' perceptions about it. The purpose of this study was to describe the quality of pain counselling of orthopaedic patients in hospital. The main research questions were:

- 1) What is the quality of pain counselling as evaluated by orthopaedic patients in hospital?
- 2) How are demographic characteristics of orthopaedic patients connected to the:
  - a) content of counselling,
  - b) implementation of counselling,
  - c) benefits of counselling and
  - d) resources of counselling?

### 3. Methods

#### 3.1. Design and data collection

A cross-sectional design was used to evaluate the quality of pain counselling in one organisation and compare factors which are related to it for further development. Data were collected during three weeks in Autumn 2018 from in-patients in a hospital in central Finland using convenience sampling; a cost-effective and efficient way to collect information about quality of care (Polit and Beck 2012.) Orthopaedic patients who were undergoing elective or emergency treatment in central hospital at the time of data collection and fulfilled the inclusion criteria of the study were contacted by the nurses during hospital treatment and asked whether they would be willing to participate in the study. The inclusion criteria were: 1) the patient was at least 18 years of age, 2) had undergone elective or emergency orthopaedic treatment, 2) attended day surgery or their stay in the department lasted more than one day, and 3) able to read and write independently in Finnish. Those with memory disorders, a cancer diagnosis and paediatric patients were

excluded from the study. If a patient wished to participate, they were given an information letter about the purpose and protocol of the study and a questionnaire to complete with a return envelope. Orthopaedic patients (n = 71) returned questionnaires to a closed box in the ward or by post to a researcher.

Data were collected using the Counselling Quality Instrument (CQI) (developed in Finland and based on concept analysis) to determine the quality of patient counselling (© Kääräinen 2007) in four sub-dimensions: content of counselling (15 items), implementation of counselling (26 items), benefits of counselling (15 items) and resources of counselling (12 items). Patients' demographic data (8 items) were also recorded, (e.g. age, gender, and procedure type). The responses for all four dimensions were measured using a 5-point Likert Scale. At the end of the questionnaire one open-ended question was included about the quality of pain counselling (Polit and Beck, 2012). The CQI has been translated into English and used with patients with different chronic diseases and surgery procedures (Kaakinen et al., 2017; Kajula et al., 2017; Rajala et al., 2018).

The validity and reliability of the CQI are considered to be good. Cronbach's alpha values (0.60–0.95) have indicated substantial to almost perfect internal consistency for the instrument (Kaakinen et al., 2017; Kajula et al., 2017; Rajala et al., 2018). In this study, Cronbach's alpha values were from 0.56 to 0.92 (Table 1). In this study, some items in the questionnaire were modified to fit the context of the study. This modification was based on previous studies, the approach to patient counselling in the hospital and the researcher's own experience. The content validity was estimated by experts (three nurses and one doctor) in patient counselling in the orthopaedic ward (Burns and Grove, 2009). A few changes were also made to the questionnaire after the evaluation as where pain management counselling was implemented during patients' hospital stay.

### 3.1.1. Ethical considerations

The study followed the Declaration of Helsinki (2013) at each stage. A research permit was approved by the hospital's ethics committee. The study did not require the permission of the research ethics committee. Only orthopaedic patients willing to take part in the study were given the questionnaire. All respondents received a cover letter that emphasised voluntary participation and presented the opportunity to obtain additional information. Responding to the questionnaire was considered as informed consent to participate in the study. Data were collected and analysed anonymously (Polit and Beck, 2012).

### 3.1.2. Data analysis

The data were analysed using IBM SPSS Statistics 24 (IBM, Armonk, NY). Descriptive statistics were used (frequencies, percentages), and missing values were replaced by means. Sum variables were identified by factor analysis (Varimax). The sum variables were divided into three

**Table 1**  
Sum variable number of items and Cronbach's alphas.

Sum variables	Item	Cronbach's $\alpha$
Content of Counselling		
Non-pharmacological pain relief	6	.84
Pain management	5	.76
Pain medication	3	.56
Implementation of Counselling		
Patient-centered pain counselling	13	.92
Interaction during counselling	7	.89
Goal-oriented counselling	6	.83
Benefits of pain counselling		
Health and functional capacity	5	.65
Non-pharmacological pain relief	4	.86
Adherence of care	3	.77
Resources of counselling		
Staff knowledge and skills	5	.81
Pain counselling materials	2	.72

categories based on means and histograms. The higher the summation value, the more satisfied the patient was with counselling. Values 1.00–1.49 represented poor counselling, 1.5–2.49 satisfactory counselling, and 2.50–3.00 good counselling.

Sum variables were constructed from items relating to four sub-dimensions of the quality of patient counselling: content of counselling, implementation of counselling, benefits of counselling and resources of counselling (© Kääräinen 2007). Three sum variables were formed relating to the content of counselling: "non-pharmacological pain relief", "pain treatment", and "pain medication". Three sum variables were formed for the implementation of counselling: "patient-centered counselling", "interaction during counselling", and "goal-oriented counselling". Three sum variables were formed relating to the benefits of counselling: "impact of health and functional capacity", "impact of non-pharmacological pain treatment", and "adherence of care". Two sum variables were formed relating to the resources of counselling: including "staff skills and knowledge" and "counselling materials" (Table 1).

Relationships between the demographic and sum variables were analysed using Fisher's  $\chi^2$  test, which is valid for small sample size and categorical data. A p-value of less than 0.05 was considered statistically significant (Polit and Beck, 2012).

## 4. Findings

More than half of the participants were women (61%) and the average age was 52 years (range 22–82 years). Seventy two percent of respondents were living with a spouse and 39% had a university education. Most participants (90%) had received elective orthopaedic treatment and 23% had attended for day surgery (Table 2). Counselling was provided mainly by nurses (96%).

### 4.1. Content of counselling

The content of counselling consisted of non-pharmacological pain relief, pain treatment and medication during an orthopaedic patient's hospital stay. Many patients (69%) received inadequate counselling about non-pharmacological pain relief options such as using a hot/cold towel or changing position. Counselling about pain treatment was judged as adequate by 38% of participants, but almost one fifth of them (17%) expressed that there was a lack of counselling about pain treatment. Twenty percent of participants experienced a lack of medication counselling for pain assessment. Many participants with previous

**Table 2**  
Demographic information of patients (n = 71).

	n	%
Sex	Female	43 60.6
	Male	28 39.4
Age	<40	18 25
	41–60	32 45
	61–80	21 30
Marital status	Single	8 11
	Cohabitation	12 17
	Marriage	39 55
Education	Divorced/widow	12 17
	Primary/element school	13 18
Department	High school	5 7
	Vocational school	25 35
	Bachelor's degree	24 34
	Master's degree	4 6
Surgery type	Orthopaedic ward	55 78
	Day Surgery	16 22
Early experience of orthopaedic treatment	Elective treatment	64 90.1
	Emergency treatment	7 9.9
Early experience of orthopaedic treatment	yes	5 7
	no	66 93

surgery treatment experience (60%) reported that they received unsatisfactory counselling about non-pharmacological pain relief, but sufficient counselling about pain treatment (60%) and medication (60%). Participants with either vocational education (43%) or university education (32%) received adequate counselling about pain treatment following their orthopaedic surgery procedure.

#### 4.2. Implementation of counselling

The implementation of counselling consisted of patient-centered pain counselling, interaction during counselling and goal-oriented counselling. About half of participants (51%) stated that their pain counselling was not patient-centered as they were not asked what they already knew about orthopaedic treatment or pain medication. Fifty five percent of participants, who had not previously experienced surgery in hospital had a lack of patient-centered pain counselling. Twenty percent of participants with experience of surgical treatment expressed unsatisfactory patient-centered pain counselling. Regarding active interaction, 48% of participants reported that they were encouraged to express their wishes and ask questions, whereas only 16% experienced poor instruction during counselling. According to nearly half of participants (49%) the goal-oriented counselling was good. There were no significant differences between participants with different education levels: about half of those who were vocational (55%) and university educated (43%) received goal-oriented pain counselling.

#### 4.3. Benefits of counselling

Pain counselling was found to benefit patients' health and functional capacity, medication, and adherence to care. Counselling also affected patients' health and functional capacity. Fifty four percent of participants received pain counselling that helped them conduct pain self-care at home and follow-up to their health condition. Although some participants (18%) felt that pain counselling had an impact on their medication, about half of participants (47%) received counselling on medication which did not affect their medication use. Both vocational (57%) and university (50%) educated participants were satisfied with the impact of pain counselling on their lives. Nearly half of women (45%) and men (45%) stated that pain counselling impacted their adherence to care. One fifth of participants who lived in alone stated that pain counselling had no impact on their adherence to care and medication use. Participants over the age of 50 years (56%) showed better adherence to care than those under 50 years (30%).

#### 4.4. Resources of counselling

From the patients' point of view, staff knowledge and skills for pain counselling were good (70%). However, there were differences between patients depending on their previous experience of orthopaedic surgery; 93% with previous experience but 7% without ( $p = 0.047$ ). Most participants with previous experience of orthopaedic surgery (80%) were satisfied with staff skills and knowledge for pain counselling in the hospital. Participants with vocational education (83%) were more satisfied with the staff's skills and knowledge of pain counselling than those with a university education (54%) ( $p = 0.008$ ). However, about half of participants (56%) were unsatisfied with pain counselling materials.

### 5. Discussion

Multi-professional collaboration is important in orthopaedic patients' postoperative rehabilitation and affects their satisfaction with care (Crosson, 2018) as this study has corroborated. Continuity of care and sharing knowledge are not only important to professionals but also affect patients' relationships with healthcare staff (Renholm et al., 2014). Patients' previous experiences of orthopaedic treatment may also

affect their satisfaction with follow-up care (Kaakinen et al., 2017; Cano-Plans et al., 2018; Rajala et al., 2018). An important part of the planning and implementation of a patient's pain management is appropriate counselling. The biological, psychological, and social dimensions of a patient's pain experience must be considered to provide the patient with optimal postoperative pain management. Informing patients about services, treatment, pain assessment, and pharmacological and non-medical strategies that are important in the treatment of acute postoperative pain in adults, focus on improving postoperative recovery (Small and Laycock, 2020.).

In this study, orthopaedic participants felt that they received overall good quality pain counselling. According to Bach et al. (2018), pain management is an important aspect of patients' care as it enables them to resume activities of daily living as soon as possible after treatment. In the present study, participants were satisfied overall with the content of pain counselling, which may mean that orthopaedic patient counselling of medication and pain relief was successful in this hospital and the staff strove to counsel patients well. Although elderly patients have been shown to be generally satisfied with the quality of care and counselling (Kaakinen et al., 2017; Mavridou et al., 2017; Rajala et al., 2018), this study showed that they still need counselling on the treatment and management of pain even when they have previous experience of the procedure.

Orthopaedic patients need pain counselling that can fit into their everyday lives and support their learning using a patient-centered approach. The present study found that patients were generally satisfied with staff interaction during pain counselling and felt they had opportunities to ask questions about pain management and procedures. A short duration stay in hospital places demands on staff and patients to use the time in hospital effectively. Staff working in hospitals should encourage patients to ask questions and use technology to help with pain counselling, particularly as it has been shown that digital counselling decreases the chances of patients' readmission to care (Jin et al., 2019).

As previous studies (Kaakinen et al., 2017; Angelini et al., 2018; Rajala et al., 2018) and this study have shown, there is currently a deficiency in patient-centered counselling. It is known that patient-centered counselling focusing on pain procedures benefits patients' recoveries and is one predictor for good quality counselling (Kaakinen et al., 2017; Rajala et al., 2018). Many orthopaedic patients only stay in hospital for one or two days or may return home on the same day, so their recovery may start soon after their operation (Renholm et al., 2014). Thus, setting clear goals for recovery, pain treatment at home, and rehabilitation is important. Goal setting should be conducted together with the orthopaedic patient so that they know what to do in practice at home.

Good quality counselling may reduce an orthopaedic patient's hospital stay and treatment costs (Jordan et al., 2014; Chiung-Jui et al., 2015) and can increase a patient's ability to function, mood, attitude to life, and pain management. It also facilitates readiness for self-care and engages the patient to be more active in their own care (Kaakinen et al., 2016). In this study, the benefits of pain counselling were deemed good. Pain counselling helped to promote the orthopaedic patients' health and functional activity and adherence to care and medication, which may all impact their recovery. However, a statistically significant difference in the scores for staff skills and knowledge was observed between participants with/without previous experience of orthopaedic surgery. This finding agrees with Cano-Plans et al. (2018), who showed that patients who had previous contact with the hospital had better expectations of treatment.

In this study, patients were unsatisfied with pain counselling materials. It is important that patients feel able to participate in their care, so pain counselling materials should be readable and easy to understand. Good results have been obtained when using different methods in combination in patient counselling (Gupta et al., 2018; Yajnik et al., 2019). Although, different technological approaches have been shown to be effective in counselling (Jin et al., 2019), it takes time to change



attitudes and improve the skills of staff and patients to use them (O'Reilly and Spruijt-Metz, 2013; Konttila et al., 2019).

## 6. Study strengths and limitations

The strength of this study was the instrument, which has been shown to have substantial to almost perfect internal consistency and Cronbach's alpha values in earlier studies (Kääriäinen et al., 2011; Kaakinen et al., 2016, 2017; Rajala et al., 2018). In this study Cronbach's alpha values varied from 0.56 to 0.92, which indicate good construct validity. The orthopaedic patient's response rate was good (51%). They received a cover letter with the questionnaire to motivate them to respond, but only patients who were interested in the topic may have actively participated in the survey and returned the questionnaire. The study was conducted at only one central hospital in Finland and sample size was small, which is a limitation that may preclude generalisation of the study findings.

## 7. Conclusions

Orthopaedic patients were satisfied with the pain counselling they received at central hospital. The results of this study can be used to educate staff to take account patient individual counselling needs of pain and develop counselling practice toward patient-centered counselling. There should be implementation of diverse pain and non-pharmacological pain treatment methods. In pain counselling implementation healthcare staff should take account of patients, previous surgery experience.

## Author contributions

Study design: EK, PK data collection and analysis: EK, PK manuscript preparation: EK, PK, MK final approval PK, MR, MK.

## Ethical statement

- 1) This material is the authors' own original work, which has not been previously published elsewhere.
- 2) The paper is not currently being considered for publication elsewhere.
- 3) The paper reflects the authors' own research and analysis in a truthful and complete manner.
- 4) The paper properly credits the meaningful contributions of co-authors and co-researchers.
- 5) The results are appropriately placed in the context of prior and existing research.
- 6) All sources used are properly disclosed (correct citation). Literally copying of text must be indicated as such by using quotation marks and giving proper reference.
- 7) All authors have been personally and actively involved in substantial work leading to the paper, and will take public responsibility for its content.

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## References

Ahmadi, A., Bazargan-Hejazi, S., Heidari Zadi, Z., Euasobhon, P., Ketumarn, P., Karbasfrushan, A., Amini-Saman, J., Mohammadi, R., 2016. Pain management in trauma: a review study. *J. Inj. Violence Res.* 8 (2), 89–98.

Angelini, E., Wijk, H., Brisby, H., Baranto, A., 2018. Patients' experiences of pain have an impact on their pain management attitudes and strategies. *Pain Manag. Nurs.* 19 (5), 464–473.

Arvidsson, S., Bergman, S., Arvidsson, B., Fridlund, B., Tingström, P., 2013. Effects of a self-care promoting problem-based learning programme in people with rheumatic diseases: a randomized controlled study. *J. Adv. Nurs.* 69 (7), 1500–1514.

Bach, A.M., Forman, A., Seibaek, L., 2018. Postoperative pain management: a bedside perspective. *Pain Manag. Nurs.* 19 (6), 608–618.

Best, J., Musgrave, B., Pratt, K., Hill, R., Evans, C., Corbitt, D., 2018. The impact of scripted pain education on patient satisfaction in outpatient abdominal surgery patients. *J. PeriAnesthesia Nurs.* 33 (4), 453–460.

Burns, N., Grove, S.K., 2009. *The Practice of Nursing Research: Appraisal, Synthesis, and Generation of Evidence*. Saunders Elsevier, St. Louis.

Cano-Plans, S., Lacueva-Perez, L., Zabalegui, A., 2018. Knowledge expectations of orthopaedic patients. *Int. J. Nurs. Pract.* 24 (3), e12639.

Chiang-Jui, Su D., Yuan, K.-S., Weng, S.-F., Hong, R.-B., Wu, M.-P., Wu, H.-M., Chou, W., 2015. Can early rehabilitation after total hip arthroplasty reduce its major complications and medical expenses? Report from a nationally representative cohort. *BioMed Res. Int.*, 641958.

Crosson, J.A., 2018. Enhanced recovery after surgery - the importance of the perianesthesia nurse on program success. *J. PeriAnesthesia Nurs.* 33 (4), 366–374.

Current Care Guideline, 2016. <https://www.kaypahoito.fi/en/ccs00111>. (Accessed 14 April 2022).

Declaration of Helsinki, 2013. *Ethical Principles for Medical Research Involving Human Subjects*. <https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/>.

Delgado, D.A., Lambert, B.S., Boutros, N., McCulloch, P.C., Robbins, A.B., Moreno, M.R., Harris, J.D., 2018. Validation of digital visual analog scale of pain scoring with a traditional paper-based visual analog scale in adults. *J. Am. Acad. Orthop. Surg.* 26 (3), e0088.

Eloranta, S., Katajisto, J., Leino-Kilpi, H., 2016. Orthopaedic patient education practice. *Orthopaedic patient education practice. Int. J. Orthopaed. Trauma Nurs.* 21, 39–48. <https://doi.org/10.1016/j.ijotn.2015.08.002>.

Eriksson, K., Wikström, L., Årested, K., Fridlund, B., Broström, A., 2014. Numeric rating scale: patients' perceptions of its use in postoperative pain assessments. *Appl. Nurs. Res.* 27, 41–46.

Eriksson, K., Wikström, L., Fridlund, B., Årested, K., Broström, A., 2016. Patients' experiences and actions when describing pain after surgery – a critical incident technique analysis. *Int. J. Nurs. Stud.* 56, 27–36.

Guntinas-Lichius, O., Volk, G.F., Zaslansky, R., Winfried-Meissner, W., 2014. The first postoperative day prospective evaluation of pain in adult otorhinolaryngologic surgery. *Clin. J. Pain* 30 (11), 978–986.

Gupta, S., Jones, G., Shah, S., 2018. Optimising orthopaedic follow-up care through a virtual clinic. *Int. J. Orthop. Trauma Nurs.* 28, 37–39.

Hällfors, E., Saku, S.S., Mäkinen, T.J., Madanat, R., 2018. A consultation phone service for patients with total joint arthroplasty may reduce unnecessary emergency department visits. *J. Arthroplast.* 33 (3), 650–654. <https://doi.org/10.1016/j.arth.2017.10.040>.

Hawker, G.A., Mian, S., Kendzerska, T., French, M., 2011. Measures of adult pain. *Am. Coll. Rheumatol. Arthritis Care Res.* 63 (11), 240–252.

Hökkä, M., Kaakinen, P., Pölkki, T., 2014. A systematic review: non-pharmacological interventions in treating pain in patients with advanced cancer. *J. Adv. Nurs.* 70 (9), 1954–1969.

International Association, 2020. For the Study of Pain. IASP). <http://www.iasp-pain.org/AboutIASP/?navItemNumber=506/>

Jin, K., Khonsari, S., Gallagher, R., Clark, A.M., Freedman, B., Briffa, T., Bauman, A., Redfern, J., Neubeck, L., 2019. Telehealth interventions for the secondary prevention of coronary heart disease: a systematic review and meta-analysis. *Eur. J. Cardiovasc. Nurs.* 19 (4), 260–217.

Jordan, R.W., Smith, N.A., Chahal, G.S., Casson, C., Reed, M.R., Sprowson, A.P., 2014. Enhanced education and physiotherapy before knee replacement; is it worth it? A systematic review. *Physiotherapy* 100, 305–312.

Kaakinen, P., Patala-Pudas, L., Kyngäs, H., Kääriäinen, M., 2012. Education chronically ill adults in the healthcare setting: an integrative literature review. *J. Nurs. Educ. Pract.* 2 (3), 185–202.

Kaakinen, P., Kyngäs, H., Tarkkiainen, K., Kääriäinen, M., 2016. The effects of intervention on quality of telephone triage at an emergency unit in Finland: nurses' perspective. *Int. Emerg. Nurs.* 26 (5), 26–31.

Kaakinen, P., Ervasti, H., Kääriäinen, M., 2017. Quality of education for knee and shoulder arthroscopy patients during day surgery. *Int. J. Orthop. Trauma Nurs.* 24, 12–20.

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

Kääriäinen, M., 2007. The quality of education: the development of a hypothetical model [Finnish], vol. 937. University of Oulu. *Acta Universitatis Ouluensis D*.

Kääriäinen, M., Kyngäs, H., 2010. The quality of patient education evaluated by the health personnel. *Scand. J. Caring Sci.* 24, 548–556.

Kajula, O., Kuusmin, O., Kääriäinen, M., Kyngäs, H., 2017. Developing genetic education for male BRCA1/2 mutation carriers based on their own experiences. *J. Nurs. Educ. Pract.* 7 (10), 119–128.

Kennedy, D., Wainwright, A., Pereira, L., Robarts, S., Dickson, P., Christian, J., Webster, F., 2017. A qualitative study of patient education needs for hip and knee replacement. *Muscoskel. Disord.* 18, 413.

Konttila, J., Siira, H., Kyngäs, H., Lahtinen, M., Elo, S., Kääriäinen, M., Kaakinen, P., Oikarinen, A., Yamakawa, M., Fukui, S., Utsumi, M., Higami, Y., Higuchi, A., Mikkonen, K., 2019. Healthcare professionals' competence in digitalization: a systematic review. *J. Clin. Nurs.* 28 (5–6), 745–761.

Kyngäs, H., Kanste, O., Patala-Pudas, L., Kaakinen, P., 2017. Copd - patients adherence to care and quality of education. *J. Nurs. Educ. Pract.* 7 (3), 32–39.

Mann, E., Carr, E., 2006. *Pain Management. Essential Clinical Skills for Nurses*. Blackwell Pub, Oxford.

- Mavridou, P., Manataki, A., Arnaoutoglou, E., Damigos, D., 2017. A survey of patients' preoperative need for information about postoperative pain - effect of previous surgery experience. *J. PeriAnesthesia Nurs.* 32 (5), 438–444.
- O'Donnell, K.F., 2015. Preoperative pain management education: a quality improvement project. *J. PeriAnesthesia Nurs.* 30 (3), 221–227.
- Oikarinen, A., Engblom, J., Kyngäs, H., Kääriäinen, M., 2017. Lifestyle education intervention effects on education quality in stroke and TIA patients. *J. Neurosci. Nurs.* 49 (3), 137–141.
- O'Reilly, G.A., Spruijt-Metz, D., 2013. Current mHealth technologies for physical activity assessment and promotion. *Am. J. Prev. Med.* 45 (4), 501–507.
- Polit, D.F., Beck, C.T., 2012. *Nursing Research: Generating and Assessing Evidence for Nursing Practice*, ninth ed. Lippincott Williams & Wilkins, Philadelphia.
- Porras-González, M., Barón-López, F.J., García-Luque, M., Morales-Gil, I., 2015. Effectiveness of the nursing methodology in pain management after major ambulatory. *Pain Manag. Nurs.* 16 (4), 520–525.
- Rajala, M., Kaakinen, P., Fordell, M., Kääriäinen, M., 2018. The quality of patient education in day surgery by adult patients. *J. PeriAnesthesia Nurs.* 33 (2), 177–187.
- Raitanen, K., Kylmä, J., Paavilainen, E., 2015. Short-term patient and family counselling for acute health change - an integrative literature review. *Clin. Nurs. Stud.* 3 (3), 96–104.
- Renholm, M., Suominen, T., Turtiainen, A.-M., Puukka, P., Leino, Kilpi, 2014. Continuity of care in day surgical care - perspective of patients. *Scand. J. Caring Sci.* 28 (4), 706–715.
- Rion, J., Kautz, D.D., 2016. The walk to save: benefits of inpatient cardiac rehabilitation. *Medsurg Nurs.* 25 (3), 159–162.
- Robbins, E., Brougham, I., Hooper, B., 2009. Postanaesthesia recovery unit. In: Hemlin, L., Richardson-Tench, M., Davies, M. (Eds.), *Periopetative Nursing an Introductory Text*. Elsevier, London.
- Small, C., Laycock, H., 2020. Acute postoperative pain management. *Br. J. Surg.* 107 (2), e70–e80.
- Specht, K., Kjaersgaard-Andersen, P., Pedersen, B.D., 2016. Patient experience in fast-track hip and knee arthroplasty - a qualitative study. *J. Clin. Nurs.* 25, 836–845.
- Wylde, V., Bruce, J., Beswick, A., Elvers, K., Goberman-Hill, R., 2013. Assessment of chronic postsurgical pain after knee replacement - a systematic review. *Arthritis Care Res.* 65 (11), 1795–1803.
- World Health Organization (WHO), 2018. *Organization for economic Co-operation and development, World Bank. Delivering quality health services. Global. Imperative. Univers. Health. Cover.* <https://www.worldbank.org/en/topic/universalhealthcoverage/publication/delivering-quality-health-services-a-global-imperative-for-universal-health-coverage>.
- Wu, C.L., Raja, S.N., 2011. Treatment of acute postoperative pain. *Lancet* 377 (25), 2215–2225.
- Yajnik, M., Hill, J.N., Hunter, O.O., Howard, S.K., Kim, T.E., Harrison, T.K., Mariano, E. R., 2019. Patient education and engagement in postoperative pain management decreases opioid use following knee replacement surgery. *Patient Educ. Counsel.* 102 (2), 383–387.