

Title: Patients' satisfaction and experiences during elective primary fast-track total hip and knee arthroplasty journey: A qualitative study

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Abstract

Aims and objectives. To explore how satisfied patients are with the process of treatment and care, and to identify the experiences that patients perceive during elective primary fast-track total hip and knee arthroplasty journey.

Background. Greater satisfaction with care has predicted better quality of recovery, and patient experience has been positively associated with patient safety and clinical effectiveness. However, little is still known about how patients experience their treatment and care.

Design. A qualitative interview study.

Methods. The study was conducted among 20 patients in a single joint replacement centre during 2018. Patient satisfaction was measured using a numerical rating scale. Patients' experiences were identified through qualitative semi-structured interviews which were analysed using an inductive content analysis method. The COREQ checklist was used (Supplementary File 1).

Results. The mean numerical rating scale score for overall satisfaction was 9.0 (SD 1.1) on a scale from 0 to 10. The patients' experiences were grouped under eight main categories that were derived from the qualitative data in the analysis: 1) *patient selection*, 2) *meeting the Health Care Guarantee*, 3) *patient flow*, 4) *post-discharge care*, 5) *patient counselling*, 6) *transparency of the journey*, 7) *communication* and 8) *feedback*.

Conclusions. The findings suggest that patients are highly satisfied after an elective primary fast-track total hip and knee arthroplasty. However, closer analysis of the patients' experiences reveals challenges and suggestions on how they could be solved, often involving digital technologies.

Relevance to clinical practice. As the number of total joint arthroplasties grows, patients and their families need to take ever greater responsibility, for their own care from advance preparation to rehabilitation. The findings of the study can be used to organise work, improving patient-clinical communication, fostering engagement, and improving patient centredness. In addition, the results pinpoint the issues on how the patient experience could be improved.

Keywords: Care pathways, Hip replacement, Knee replacement, Patient experience, Satisfaction with care, Qualitative study

What does this paper contribute to the wider global community?

- This article provides important insights into the patients' direct experience of every day care with a focus on satisfaction with the process of treatment and care, and experiences that patients perceive during their elective primary fast-track journey.
- The study reported in the paper is unique in that it focuses on the whole surgical care journey, which has not been at the core of previous qualitative studies in this area.
- Being knowledgeable about patient experiences may help nurses to better provide effective, patient-centred care that responds to patients' needs throughout their elective surgical care journeys.
- In addition, the results pinpoint the issues on how the patient experience could be improved.

1. Introduction

In 2013, the Premier Healthcare Alliance (Premier) and the Institute of Healthcare Improvement (IHI) released a novel pathway concept called an Integrated Care Pathway to improve care for patients receiving total joint arthroplasty (TJA). This pathway identifies processes that lead to safe, effective, efficient, and patient- and family-centred care for elective TJA (Premier-IHI, 2013). In addition, the pathway captures four primary time periods, which present the major segments of the patients' journey: pre-operative surgical visit, pre-operative preparation and planning for surgery, hospital admission for surgery through discharge from hospital, and post-discharge care.

Approximately 326,000 total hip arthroplasties (THA) and 690,000 total knee arthroplasties (TKA) are performed annually in the USA (Williams, Wolford, & Bercovitz, 2015; Wolford, Palso, & Bercovitz, 2015). Demand and costs of THA and TKA have increased significantly over the past decade (Kurtz, Ong, Lau, Mowat, & Halpern, 2007; Culliford et al., 2015). In the USA, for instance, the demand for THA has grown from 14.2 per 10,000 population in 2000 to 25.7 per 10,000 in 2010 (Wolford et al., 2015). Correspondingly, the demand for TKA has grown for both men and women from 24.3 per 10,000 population in 2010 to 45.3 per 10,000 in 2010 (86%) and from 33.0 per 10,000 population in 2010 to 65.5 per 10,000 in 2010 (99%), respectively (Williams et al., 2015).

At the same time, the average length of a hospital stay has decreased clearly from 5 days to under 4 days in patients with THA (Wolford et al., 2015) and from 2 days to 1.3 days in patients with TKA (Barad, Howell, & Tom, 2018). Consequently, patients and their families need to take ever greater responsibility for their care from advance preparation to rehabilitation. This can be problematic, and patients may need support to handle challenges during the early period of recovery.

The study is a part of a larger research and development project that co-develops a digital patient journey solution together with patients, hospitals, technology providers and researchers. This article, however, focuses solely on the satisfaction with and experiences of the patients who are undergoing or have undergone elective primary THA and TKA in order to receive a comprehensive understanding of the patients' perspectives for future development of the surgical care journeys and related digital technologies. The research questions asks *how satisfied patients are with the process of treatment and care* and *how patients experience their elective primary fast-track THA/TKA journey*.

2. Background

Refinements in surgical techniques and devices, anaesthesia protocols and patient selection have facilitated fast-track (Kehlet, 2013; Hansen, 2017) and outpatient arthroplasty (Lombardi et al., 2016), while the advantages of these methodologies are well established from a socio-economic perspective (Winther et al., 2015; Berend, Lombardi, Berend, Adams, & Morris, 2018). Despite the known benefits of the programs, concerns have been raised regarding enhanced recovery protocols in selected patient groups, particularly in patients with advanced age and complex comorbidities (Styron, Koroukian, Klika, & Barsoum, 2011; Pawa, Cathcart, Arulampalam, Tutton, & Motson, 2012; Wolford et al., 2015). In addition, elderly patients may have more postoperative pain and require a longer stay in hospital (McCartney & Nelligan, 2014). Moreover, the surgical information given can be difficult to understand for older adults (Lithner et al., 2012).

Although patient experience has been positively associated with patient safety and clinical effectiveness (Doyle, Lennox, & Bell, 2013), only few studies have investigated patient experiences of joint replacement care (Johnson, Horwood, Gooberman-Hill, 2014a; Webster et al., 2014; Specht, Kjaersgaard-Andersen, & Pedersen, 2016; Strickland et al., 2017). In particular, little is still known about how patients experience their treatment and care from the first pre-operative surgical visit at the outpatient clinic until post-discharge care (McHugh & Luker, 2012). Here, experience covers everything that the patient consciously goes through when receiving and participating in the treatment and care: both the relational aspects (i.e. the interpersonal aspects of care) and the functional aspects (i.e. basic expectations of how the care is delivered) (Doyle et al., 2013).

Greater satisfaction with care has been predicted better quality of recovery (Johansson Stark et al., 2016). To date, patient satisfaction regarding fast-track methodology has mostly been studied quantitatively (Specht, Kjaersgaard-Andersen, Kehlet, Wedderkopp, & Pedersen, 2015). This imbalance in research methodology may pose limitations on identifying opportunities for practice innovation. Meanwhile, qualitative inquiry has had an essential role in building knowledge of existing practices, experiences and context in health interventions (Leeman & Sandelowski, 2012). Being knowledgeable about patient experiences may help nurses to better provide effective, patient-centred care that responds to patients' needs throughout the elective surgical care journey.

Our study addresses this gap in evidence by focusing on the four major segments of patients' elective primary fast-track THA/TKA journey: satisfaction with and experiences of pre-operative surgical visit, pre-operative preparation and planning for surgery, hospital admission for surgery (e.g. preparation, surgical operation, recovery room) to discharge from hospital (e.g. inpatient stay, discharge process), and views about post-discharge care (e.g. recovery and rehabilitation, follow-up during the first 6–12 weeks).

3. Methods

3.1 Design

This work is an exploratory case study with an interpretative nature. A qualitative, descriptive design was performed, allowing comprehensive and detailed data collection about patient satisfaction and experiences.

3.2 Setting and sample

This study was conducted within a single joint replacement centre in a 900-bed, tertiary-level university teaching hospital in Finland where the fast-track methodology was first launched in 2012 and has been implemented gradually since then. According to the Finnish Primary Health Care Act (66/1972), an assessment of the need for treatment shall be commenced within three weeks of the hospital receiving notification that a patient has been referred. In situations where the assessment of the need for treatment requires consultation with a specialist or special imaging or laboratory tests, the assessment and required tests shall be carried out within three months of the hospital receiving notification. If a healthcare professional estimates that treatment is necessary, treatment must begin within six months of the need for treatment having been ascertained.

Patients were selected for the study using convenience sampling (Polit & Beck, 2017). Patients were eligible for inclusion if they 1) were ≥ 18 years; 2) were able to speak, read and understand Finnish; 3) were undergoing or had undergone elective primary THA/TKA; and 4) had a smartphone or tablet computer. Patients with rheumatoid arthritis (RA) and patients who were undergoing or had undergone revision surgery were excluded because the etiology and treatment of RA and THA/TKA revision differs from osteoarthritis and primary THA/TKA. Based on our previous study, the sample size of 20 homogenous interview participants was estimated to be enough to achieve sufficient information power. Drawing on Malterud, Siersma, & Guassora (2016), the adequacy of the final sample size was evaluated continuously during the interviews taking in the account the study aims (narrow exploration of patient satisfaction and very specific or rare experiences that patients perceive during elective primary fast-track THA/TKA journey), sample specificity (convenience sampling undertaken, however sparse sample of patients with THA/TKA due to osteoarthritis), theoretical background (specific surgical care journey based on process mapping), quality of dialogue (strong and clear communication between experienced PhD researcher with a strong practical nursing science background and participant), and analysis strategy (inductive content analysis). This process further supports a data saturation approach, whereby the sample size was also considered to be sufficient. One patient withdrew from the research before completing the interview.

3.3 Fast-track methodology

During the study period, a specialist assessment in conjunction with pre-operative surgical visits and patient education was performed on the same day. In addition, there was an interview with an anaesthesiologist. Patients were admitted and mobilised on the day of the surgery and discharged one to three days after surgery using well-defined discharge criteria (Hansen, 2017). Follow-up was conducted by a physiotherapist (if not contraindicated) after six to eight weeks post-discharge for patients with TKA and after eight to 12 weeks for patients with THA.

3.4 Data collection

The period for recruitment and data collection ran from 8 November to 19 December 2018. Patients were recruited 1) prior to surgery, during a pre-operative surgical visit; 2) post-surgery, in the immediate post-operative phase, while they were inpatients at the hospital; and 3) post-surgery, when they were on routine outpatient visit. The patients were approached by the staff.

Private, face-to-face interviews were carried out in an undisturbed room at the hospital by qualitative methodologists with a nursing science background (PhD) and it was made clear to patients that the researcher was not a member of the clinical staff. Prior to the interview, the researcher introduced herself (e.g. name, occupation, affiliations) and explained the purpose of the research and that the interview would be audio-recorded and transcribed. Patients who agreed to participate signed a consent form prior to the interview. Participation was voluntary, and the patients could withdraw without giving a reason for their withdrawal.

Satisfaction outcomes were measured on a numerical rating scale (NRS) from 0 (not satisfied at all) to 10 (best possible satisfaction) by structured questions (Table 1). Other interviews were semi-structured, and notes were taken. Interview questions were framed by topic guides specific to each four time periods that presents the major segment of the patients' journey. Open questions, such as: *"What kind of expectations, questions, concerns or fears did you had when you arrived at the pre-operative surgical visit?"* aimed to elicit patients' experiences of the surgical care journey. More specific questions were also defined and used as prompts in case the respondent replied very briefly or the interviewer needed to hear more about an issue that was brought up.

The interviews lasted between 20 and 58 minutes (mean 36.8 minutes, 12 hours and 16 minutes in total). The adequacy of the final sample size was evaluated continuously during the interviews (Malterud et al., 2016). All data was treated as confidential and transcribed immediately by a transcription service provider. Physical data was stored under lock and key at the university, and digital data was stored on the research organisations' professionally maintained servers protected by passwords.

3.5 Data analysis

Demographic data is presented using either frequencies and percentages or means and standard deviations (SDs). Data from the transcribed interviews was analysed using inductive content analysis (Elo & Kyngäs, 2008): Firstly, all answers were collected in sub-categories based on the patients' descriptions using open coding (for instance referral unrarried). Secondly, similar open codes were grouped together into a generic category (for instance referrals) and a main category (for instance problems to meet Heath Care Guarantee) and labelled using content-specific keywords (Table 2). The abstraction process continued as far as it was reasonable and possible through manual and digital tabulation. NVivo 12 Plus for Windows was used for coding, grouping and categorisation.

3.6 Rigour

Rigour was demonstrated, ensuring credibility, dependability, conformability and transferability (Polit & Beck, 2017). To achieve credibility, the interviews were audio-recorded and transcribed verbatim, to ensure that all the responses were wholly and accurately captured for data analysis. To achieve dependability, an audit trail was set up, which included clearly stating the research design and data collection process, as well as the steps taken to analyse the data. Confirmability was ensured by receiving feedback from a PhD-qualified expert in the team,

who checked the results of inductive content analysis, i.e. categories and their content, to agree on the way in which the data was labelled and to ensure adequate information was collected, and provided alternative perspectives and challenged any assumptions made by the corresponding researcher (Graneheim & Lundman, 2004). Last, rigour was ensured by using original quotes from the patients. In addition, the sample selection and the data analysis process were explained in detail and findings were presented without any comments to ensure transferability (Shenton, 2004). Reporting of the study findings adheres to the Consolidated Criteria for Reporting Qualitative Research (Tong, Sainsbury, & Craig, 2007) (Supplementary File 1).

3.7 Ethical considerations

This study was approved by the relevant academic centre, and it was reviewed by the local ethics committee during the autumn of 2018 (Decision No: 83/2018). The aim and the method of the study were explained to the patients, and they were also informed by a standard written information form. Written informed consent was obtained from patients prior to inclusion in the study to ensure that the participation was voluntary (Declaration of Helsinki, 2013). All researchers processing the raw interview data signed a data processing agreement.

4. Results

During the study period, nine patients with THA (45.0%), and 11 with TKA (55.0%) were included. Of the THA patients, seven (77.8%) were women and two (22.2%) were men, with ages ranging from 52 to 74 years (mean 66.2, SD 7.8). Of the TKA patients, six (54.5%) were women and five (45.5%) were men, with ages ranging from 56 to 76 years (mean 68.1, SD 6.6). The majority of THA (77.8%) and TKA (81.8%) patients had experience of previous surgical care journeys.

4.1 Patient satisfaction

The mean numerical rating scale score for overall satisfaction was 9.0 (SD 1.1) on a scale of 0 to 10. The mean score for satisfaction with the pre-operative surgical visit (e.g. patient education) was 8.9 (SD 0.8), hospital admission for surgery (e.g. preparation, surgical operation) was 9.3 (SD 1.0), discharge from hospital (e.g. inpatient stay, discharge process) was 9.1 (SD 1.0), and satisfaction with post-discharge care (e.g. recovery, rehabilitation) was 7.7 (SD 3.2).

4.2 Patient experience

The patients' experiences were grouped under eight main categories that were derived from the qualitative data in the analysis: 1) *patient selection*, 2) *meeting the Health Care Guarantee*, 3) *patient flow*, 4) *post-discharge care*, 5) *patient counselling*, 6) *transparency of the journey*, 7) *communication*, and 8) *feedback*. These issues reflected the relational and functional aspects of treatment and care that affected their experiences.

4.2.1 Patient selection

Identified aspects of patient experiences regarding patient selection were related to indications for surgery and eligibility criteria. According to the interviews, diagnoses and referrals from primary to secondary care were delayed due to lack of early radiographic examinations, role ambiguities and diagnostic discrepancies/malpractice in primary care. The following excerpt from the interviews illustrates this view: *"I visited a medical doctor because of the pain, they could have sent me to the radiographic examinations earlier. They just asked me to take painkillers"* (interviewee no. 212, female with THA).

The interviewees also mentioned some inconsistencies in lifestyle counselling related to eligibility criteria. A little over half of the patients had made some lifestyle changes prior to surgery, while 63.6% had received lifestyle counselling from a friend, a mobility aids centre, a physiotherapist or the referring physician. The most frequent lifestyle change was related to the amount of physical training, while only one patient received counselling related to overly high BMI. Patients stated that they would be willing to receive additional support related to lifestyle changes. For instance, one interviewee stated: *"I wish that we could have an eHealth solution that shows me if I have achieved the goals or fulfilled all the commonly agreed tasks"* (interviewee no. 205, female with THA).

4.2.2 Meeting the Health Care Guarantee

Identified aspects of patient experiences regarding meeting the Finnish Health Care Guarantee were related to referrals, waiting list management and waiting time. According to the interviews, patients had found out that

referrals were returned to primary care (due to lack of anamnestic information) or referrals did not arrive at secondary care, causing delays and several (unnecessary) follow-up calls by the patients. In addition, six months' waiting time from treatment ascertainment to treatment was considered too long, and patients tried to hasten the triaging of care by contacting the hospital via phone and listing the reasons for the urgent need for surgery. Moreover, indirect scheduling, i.e. being put on a waiting list instead of being given a specific appointment, directly hampered their pre-operative preparation.

Correspondingly, patients made suggestions related to referrals, scheduling and self-scheduling. Generally, there is a need for faster access to healthcare services. According to the interviews, there is a need to monitor the status of the referral and information could be provided through the personal health record (PHR, "My Kanta Pages") and/or another eHealth solution. It was stated in the interview that: *"It would be great to have more information e.g. through My Kanta Pages about the referral status, especially if the referral is sent from a private to a public hospital"* (interviewee no. 215, male with TKA). In addition, patients prefer accuracy of one week in scheduling, with earlier (digital) notice of an appointment. For instance, one interviewee noted: *"It would have been important to know at least some estimated time for the surgical operation. If I had known that this operation was after the summer, I would not have had to worry about the notice of appointment coming tomorrow"* (interviewee no. 220, female with THA). Moreover, needs related to self-scheduling were detected regarding pre-operative surgical and control visits.

4.2.3 Patient flow

Identified aspects of patient experiences in patient flow regarding pre-operative preparation (e.g. pre-operative workflow tasks), hospital admission for surgery (e.g. preparation, surgical operation) and discharge from hospital (e.g. inpatient stay, discharge process, post-operative workflow tasks) were related to environmental needs as well as coordination and continuity of care.

Preoperative preparation

Patients had faced difficulties related to the notice of appointments, double booking, long distances (e.g. travelling), and the preparations themselves during preoperative preparation. For instance, sending a notice of appointment by post causes delays and hampers pre-operative preparation because it was found out that patients had not always received them on time. One interviewee said: *“I went to the laboratory because of menopause, the person who took the blood test told me that I should be in the laboratory again on Monday, and then I realised that I had no information either about the surgical operation or the laboratory tests”* (interviewee no. 206, female with THA). Patients mentioned that they wish to receive walking and other aids from hospital right after their pre-operative surgical visit rather than from a separate mobility aids centre, which was logistically inconvenient. In addition, the interviewees stated that they wished they could have digital checklists and reminders about patient-centred workflow tasks in chronological order with tickboxes prior to hospital admission for surgery because there was so much to remember.

Hospital admission for surgery

Patients had faced unexpected difficulties related to navigation, capacity constraints, scheduling, equipment and anaesthesia during hospital admission for surgery. The interviewees had noted that hospital capacity is very limited and sometimes elective patients were required to wait for preparations and therefore also wait for the actual surgical operation for several hours (range one to six hours). For instance, one interviewee stated: *“My appointment was at seven, I was there at quarter past and then I had to wait in the waiting area for about two hours before I got to the room”* (interviewee no. 219, male with TKA). In addition, local anaesthetic techniques sometimes failed, or local anaesthesia did not last until the end of the procedure and patients needed (urgent) general anaesthesia: *“Well, the spinal cord touch did not work out”* (interviewee no. 210, male with TKA).

Correspondingly, patients made suggestions related to navigation and scheduling. They wish to receive a navigator with a map and audio-visual instructions to help them navigate to pre-operative surgical visits and surgical operations. They also wished for a stepwise admission during hospital admission for surgery. The following excerpt from one of the interviews illustrates this view: *“Why are they taking all the patients in there at seven when nothing will happen? Why not ask the first five patients to arrive at seven and then the next five at seven thirty, next at eight, eight thirty, nine and so on?”* (interviewee no. 219, male with TKA).

Discharge from hospital

The patients had faced problems that were related to work organisation, role ambiguity, recovery (e.g. lack of diabetic diet) and the discharge process (e.g. lack of escort hampering post-discharge care) during the discharge phase. Patients had observed that timetables for different stakeholders are not synchronised: *“Somehow, I felt that medical imaging nurses had their own schedule and physiotherapists had their own and they were not at all synchronised”* (interviewee no. 220, female with THA). In addition, pain management is not synchronised with radiological examinations, for example. Generally, patients were satisfied with accelerated discharge. However, one interview stated: *“It was really fast, like a running start in a sports competition”* (interviewee no. 204, female with THA). Moreover, the implementation of discharge criteria that should have been available for all patients was insufficient; some of patients were unaware of them or they were inaccessible.

Correspondingly, patients made suggestions that were related to work organisation, recovery, and preparation for discharge. According to the interviews, the timetables of different stakeholders during inpatient stay should be synchronised. For instance, one interview stated: *“It just came to my mind if the basic activities could be planned during the previous day, that would be very nice for the patient”* (interviewee no. 220, female with THA). In addition, patients wish to view their laboratory results digitally and diabetics should be provided sugar-free and high-fibre food immediately after discharge from the recovery room. Further, patients suggested that they need more information about discharge criteria and daily targets. Attitudes towards the digital monitoring of discharge criteria were positive.

4.2.4 Post-discharge care

Identified aspects of patient experiences in post-discharge care regarding rehabilitation (e.g. services, compliance), recovery (e.g. pain management, tiredness, homecare services), and control visit (e.g. scheduling, implementation) were related to coordination and continuity of care as well as clear, comprehensive information and communication.

The majority of patients reported being highly committed to their exercise program post-discharge. In addition, patients stated that they have understood that they have an active role in their recovery. It was observed, however, that access and quality of rehabilitation services differs between/within organisations and especially in rural areas. Some of the patients did not know how to access services and had forgotten how to use elbow crutches. Many patients expressed concerns regarding under-treated postoperative pain. In addition, patients were unfamiliar with weaning themselves from their multimodal analgesic strategy, as overly fast weaning causes withdrawal symptoms.

Some of the patients were dissatisfied with the scheduling and implementation of control visits: *“I was really surprised when I got the letter that (at the control visit) I cannot meet the doctor that conducted the surgery,”* (interviewee no. 218, female with THA). In addition, the lack of self-scheduling causes a need for rescheduling.

Correspondingly, patients expressed suggestions that were related to rehabilitation, recovery (e.g. pain management), control visit (e.g. self-scheduling, returning walking aids), and certificate of joint replacement (e.g. for security control while travelling). They felt that rehabilitation should be more personalised (e.g. individualised exercises with alternatives and targets) in terms of exercise instructions given to each patient. In addition, patients had perceived very specific needs for telerehabilitation; telerehabilitation should include

general information, personalised instructions and targets for rehabilitation, an automatic training diary, and progress reports with visualisations.

All interviewees had a favourable attitude towards monitoring and follow-up of rehabilitation. Moreover, pain management should be more comprehensive meaning that it should also cover other pains that are not directly related to the operation. For instance, one interviewee noted: *"It would be great if they could notice also the problems in the back, neck or wherever, they could look at all the problems for the one person at the same time, that could be the best possible care"* (interviewee no. 218, female with THA). Moreover, there is a need to monitor pain (e.g. dosing of painkillers) during post-discharge care.

4.2.5 Patient counselling

Generally, patients were satisfied with the quality of counselling. Identified aspects of patient experiences regarding patient counselling were related to implementation, resources and content. In some cases, implementation of patient counselling was considered non-patient-centred and inconsistent (e.g. there were discrepancies related to the need for pre-operative surgical visits, walking aids and control visits). One interviewee said: *"I think everything is made as a routine here, it is not really an individual service"* (interviewee no. 204, female with THA). In addition, resources for counselling (e.g. material and time) were considered insufficient and old-fashioned. Attitudes towards digital material were controversial: almost a half of the patients preferred digital materials, while the rest of them were inexperienced with digital materials, they did not have access to the internet, or they preferred paper-based instructions.

Patients considered that the written information received at home was helpful for preparing but insufficient to help patients to manage complications at home. In addition, patients considered that the content of counselling could include more information related to guidance (e.g. navigation and check-in/registration), most frequently-asked questions prior to (e.g. naming of wards, surgery technique) and post-surgery (e.g. pain management with interactions between medications, wound care and rehabilitation). In addition, counselling could include digital materials including videos (e.g. exercises per phase, alternative exercises) and clear instructions in chronological order. One interview stated: *"They could show us a video about hip rehabilitation. This could be guided by a physiotherapist. It would be great to know more about what is done in which phases and if one has some limitations, can one do something else in that case?"* (interviewee no. 218, female with THA). In addition, it was felt that some instructions should not be delivered unnecessarily. There is a particular need for personalisation in rehabilitation (personal constraints need to be taken into account).

4.2.6 Transparency of the journey

Identified aspects of patient experiences regarding transparency of the journey were related to minor refinements regarding the status of other joints (e.g. the need for surgery on the opposite side), surgery techniques (e.g. materials, partial/total replacement) and duration, anaesthesia and pain management, discharge criteria from recovery room to inpatient care, amount of blood samples taken during inpatient stay, schedule during inpatient stay, rehabilitation (e.g. how/how not to exercise, use of aids, amount of exercises), recovery (e.g. ability to drive carefully, how to survive alone at home, how to survive with pain and tiredness), pain management during post-discharge care, and complications (e.g. occurrence of hospital-acquired infections, leg length discrepancy, need for revision, ability to work after replacement). The following excerpt from one of the

interviews illustrates this view: *“And, well, just this kind of issues of what preconditions you have before you are moved to the ward and how you should feel when you wake up in the recovery room. And, do you get, what kind of medication do you get there? They have medications and hydration there, don't they? All these issues that you don't need to wonder why, they use a cannula all the time for whatever purposes”* (interviewee no. 215, male with TKA).

The rest of the identified aspects were related to waiting times and referral statuses that could be partly solved with improved patient-clinical communication. Patients also wanted to hear about other patients' experiences (e.g. peer review). For instance, one interviewee noted: *‘Well, at least you could think that because many people have the same kind of surgeries, information and experiences could be shared with each other; you could tell that my surgery went like this and ask if the other one has received certain information. Because often it is like “for goodness' sake, have you not been instructed about this?” with those who have been operated on at a different hospital, as an example. And even if you have same the kind of surgery and so on, at all other places things are not as good as here’* (interviewee no. 214, female with TKA). In addition, the digital timeline that highlights the key events was considered beneficial.

4.2.7 Communication

Identified aspects of patient experiences regarding communication were related to patient-clinician communication and information transfer between primary and secondary care as well as private and public hospitals were detected. In addition, patients had faced difficulties contacting the right person, the calling time was considered too short, the line was busy, or no one called back as promised. One patient expressed this by saying: *“The phone call went on hold and then they tried to contact the person, then they gave me a number, which I can call the next morning between 9 and 10. When I called in the morning, that person said that she will talk to some person, who will call you soon”* (interviewee no. 206, female with THA). In addition, communication and information flow between/within organisations were considered insufficient. For instance, a refusal to permit a blood transfusion was ignored and referrals failed to arrive, as mentioned before.

The majority of patients felt that communication between different stakeholders and patients should be improved. The following excerpt from one of the interviews illustrates this view: *“If there is some problem, it would be great to be able to contact a health specialist without being at the hospital physically or to ask for an appointment. It would be great to get an answer to the questions, find out how to act and if there is need to visit a medical doctor or have some further examination...that would be really important”* (interviewee no. 218, female with THA).

Patients wish to digitalise all communication between each stakeholder and patients. In addition, patients want to write preliminary questions down prior to pre-operative surgical visits as well as pre-operative preparation and planning for surgery. The majority of patients stated that they preferred remote visits and the use of a (live) chat service, especially in rural areas, while the rest of the patients were inexperienced in the use of remote visits and chat services, considered them too complex, or preferred phone conversations and face-to-face meetings instead of remote visits and chat services. Patients stated that they want to get more peer support and to read about previous experiences from a central, reliable location.

4.2.8 Feedback

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Identified aspects of patient experiences regarding feedback were related to giving and receiving feedback. Generally, patients did not know how to give (written) feedback about the journey. In particular, they did not know how to give targeted feedback to each stakeholder. In addition, patients wanted to receive feedback from stakeholders. Attitudes towards digital feedback were positive: patients could provide responses to a short (maximum of five questions) feedback questionnaire on their mobile phones to enhance targeted feedback. One patient expressed this by saying: *“But not too many questions; half a dozen at the most. And think about them very carefully; what is being asked, and then open the field for feedback so that you can give vent to your feelings if something went wrong”* (interviewee no. 219, male with TKA).

5. Discussion

We found that patients' satisfaction levels were high following an elective primary fast-track THA/TKA. However, analysis of patients' experiences revealed problems that they had perceived during the journey and suggestions how they would solve them. Experiences were grouped under eight main categories: 1) *patient selection*, 2) *meeting the Health Care Guarantee*, 3) *patient flow*, 4) *post-discharge care*, 5) *patient counselling*, 6) *transparency of the journey*, 7) *communication*, and 8) *feedback*.

5.1 Patient satisfaction

The overall satisfaction was in line with previous studies (Specht et al., 2015; Specht et al., 2016). Contrary to Specht et al., (2015), patients with TKA were slightly more satisfied than patients with THA. The results, however, should be interpreted with caution due to limited sample size. In the literature, no association has been found between overall satisfaction and age, length of stay (LOS) or comorbidities, except in TKA patients with diabetes (Specht et al., 2015) and female THA patients (Fraudenberger, Baker, Siljander, & Rohde, 2018).

5.2 Patient experience

In line with the previous literature, progressive changes in mobility and pain were the leading factors that drove patients to seek help, leading to THA/TKA (Webster et al., 2014; Johnson et al., 2014b). Identified aspects of patient experiences regarding patient selection were related to indications for surgery and eligibility criteria (e.g. timely, tailored and expert management of physical symptoms, coordination and continuity of care). Meanwhile, considerable variations in indications for surgery have been observed (McBride, Hardoon, Walters, Gilmour, & Raine, 2010; Jansson, Harjumaa, Puhto, & Pikkarainen, 2019).

The patients reported the sense that referrals from primary to secondary care were delayed due to lack of early radiographic examinations, role ambiguities, incorrect diagnoses or because their general practitioners strongly advocated alternative strategies (Johnson et al., 2014a; Johnson, Horwood, Gooberman-Hill, 2014b; Webster et al., 2014). According to Sansom et al. (2010), it is important that primary and secondary care clinicians identify and explore patients' perceptions of needs in order to provide consistency in referral pathways and to support patient involvement in, and understanding of, shared decision-making.

In addition, presurgical risk screening tools are needed to predict surgical outcomes, identify factors impacting health care service delivery and/or costs, and to predict discharge planning requirements (MacDonald, Ottem, Wasdell, & Spiwak, 2010). In the literature, almost half of the patients have had preoperative risk factors, which may potentially lead to complications or a prolonged LOS (Hansen, Bredtoft, & Larsen, 2012), while only 63.6% of the patients had received lifestyle counselling related to eligibility criteria in this study.

Identified aspects of patient experiences regarding meeting the Health Care Guarantee were related to referrals, waiting list management and waiting time. Limited access to healthcare services, and the continual drive to reduce waiting times and to monitor and measure the passage of time have been critical issues in many countries during the past decades, while general dissatisfaction with healthcare services has been related to waiting times (Heaney & Hahessy, 2011; Johnson et al., 2014a; Webster et al., 2014). Generally, six months' waiting time from treatment ascertainment to treatment was considered too long and patients tried to hasten the triaging of their care.

To date, patients waiting for THA/TKA have experienced a significant increase in pain and physical disability (Johnson et al., 2014a), high levels of physical distress (Lidner et al., 2018) and an overall deterioration in health-related quality of life (Ackerman, Bennel, & Osbourne, 2011). We found that the lack of direct scheduling and uncertainty about scheduling were the most important factors that hampered pre-operative preparation. In the previous literature, the main barriers hampering waiting time and waiting list management have been organisational (e.g., physician involvement, human resources capacity, and information management systems) and contextual (e.g., stakeholder engagement, funding) factors (Pomey et al., 2013).

Identified aspects of patient experiences in patient flow regarding pre-operative preparation, hospital admission for surgery, and discharge from hospital were related to environmental needs as well as coordination and continuity of care. Currently, patients are responsible for following patient-centred workflow tasks based on paper-based instructions that they are given at the pre-operative surgical visit and during the discharge process. In line with literature (Heaney and Hahessy, 2011; Sibbern et al., 2016), the majority of patients felt that the provision of written information helped them to prepare for surgery. This system, however, is inherently inefficient and prone to error and non-adherence: inconsistent information may hamper preoperative preparation, cause stress and reduce patients' trust in healthcare professionals (Sibbern et al., 2016).

Identified aspects of patient experiences in patient flow regarding hospital admission for surgery and discharge from hospital were related to environmental needs as well as coordination and continuity of care. Similarly to Strickland et al. (2017), some participants reported a delay in being sent to the operation theatre, which made for a very uncomfortable experience due to being hungry and thirsty. In addition, patients considered that there is a need for stepwise admission for hospital admissions for surgery, while the literature suggests that 15% of patients feel they are kept waiting a long time in the waiting area (Heaney & Hahessy, 2011).

In line with the literature (Webster et al., 2014; Specht et al., 2015), patients were generally satisfied with their discharge procedure, even though the majority of patients expressed concerns related to short LOS (Sibbern et al., 2016), and 10% of patients with THA and 8% with TKA have wanted to stay longer in hospital (Specht et al., 2015). Similarly (Sibbern et al., 2016), patients described concerns about the consequences of early discharge for them and their families, particularly in terms of managing pain and mobility challenges following discharge.

The provided written information was considered insufficient to help patients to manage complications at home. In the future, these patients could benefit from post-discharge additional assistance (Sibbern et al., 2016). For instance, attitudes towards digital monitoring and telerehabilitation were very positive. We found that patients could be provided with digital checklists and reminders about pre- and postoperative workflow tasks in chronological order with tickboxes. In the literature, it has been shown that patient-directed reminders can improve medication adherence (Thakkar et al., 2016) and self-monitoring of blood glucose (Sanderson et al., 2019), as an example.

Identified aspects of patient experiences in post-discharge care regarding rehabilitation and recovery were related to coordination and continuity of care as well as clear, comprehensive information and communication. In line with Webster et al. (2014), we observed that the home environment and socio-economic status of patients affected their recovery and their ability to manage a shortened LOS. Some of the patients were highly dissatisfied with the first weeks at home following discharge. The literature suggests that patients may

have had unrealistic expectations of recovery (McHugh & Luker, 2012). In addition, most of them have received minimal information and professional health support. At the same time, patients have had to overcome a number of challenges such as diminished confidence, frustration over slow progress and reduced physical functioning (McHugh & Luker, 2012).

In line with Webster et al. (2014), however, the majority of patients reported being highly committed to their exercise program post-discharge. In addition, attitudes toward telerehabilitation were positive, and patients expressed very specific needs for it. In the literature, telerehabilitation has been used to deliver ongoing rehabilitation, primarily in cardiac, neurological and physiotherapy rehabilitation to reduce LOS and costs to both patients and health care providers (Peretti, Amenta, Tayebati, Nittari, & Mahdi, 2017).

Patient counselling has become an integral part of the pre-operative preparation for patients, especially through the introduction of pre-operative surgical visits for elective surgery. Identified aspects of patient experiences regarding patient counselling were related to quality of counselling (e.g. implementation, resources and content of counselling). In line with the literature (Heaney & Hahessy, 2011; Kearney, Jennrich, Lyons, Robinson, & Berger, 2011), we found that patients were very satisfied with the care they received during the pre-operative surgical visit. In the literature, patients who have received pre-operative education have been more active and empowered in their own care (Specht et al., 2015) and reported feeling better prepared for surgery (Kearney et al., 2011; Conradsen, Gjersest, & Kvangarsnes, 2016). In addition, comprehensive clinical pathways incorporating a pre-operative education for elective THA/TKA have led to lower LOS, higher home discharge, lower readmission, and improved cost (Edwards, Mears, & Barnes, 2017).

In addition, patients were generally satisfied with the quality of counselling. However, in some cases, the implementation of counselling was considered non-patient-centred and inconsistent, and the counselling resources were considered old-fashioned and insufficient, which was in line with the previous literature (Heaney & Hahessy, 2011; Sibbern et al., 2016). In line with the literature, many perceived a need for additional time to digest the preoperative information and adequately prepare practically for their impending surgery and recovery (Jansson et al., 2019). The ideal timing for pre-operative surgical visits has been from one to three weeks before surgery (Sibbern et al., 2016).

Providing patient-centred care implies that the caregiver knows what specific care the individual needs. Getting to know the individual takes time that may not be available in a busy fast-track methodology (Heaney & Hahessy, 2011). Hence, preliminary questions prior to a pre-operative surgical visit as well as pre-operative preparation and planning for surgery could be used to identify the specific needs of the patient and adjust their care accordingly, if possible. Patients were, however, generally satisfied with the content of information provided, even though most of them were seeking information from the internet and/or friends and relatives, demonstrating the differing information needs of patients (Heaney & Hahessy, 2011). In the literature, identified informational gaps have included knowledge of the surgical procedure, postoperative symptom management, and a point-of-contact person following hospital discharge to offer support and guidance (Lithner et al., 2012).

Identified aspects of patient experiences related to the transparency of the whole journey could be partly solved through more comprehensive patient counselling (See Patient counselling) and by improving the communication between the patient and the caregivers (See Communication). In general, it should be noted that patients feel it is important they are made aware of the schedule of the surgery care journey beforehand, in order to plan the help and support that is required, especially post-surgery. It is not self-evident that people have help

available at home: 21% of Finnish people live alone and over half of people aged 80 years or older live alone (OSF, 2016). One out of ten adults in Finland feel lonely and generally, women feel loneliness more than men.

Identified aspects of patient experiences were related to clear, comprehensive information and communication tailored to patient needs to support informed decisions and enable self-care. In addition, several difficulties related to information transfer between primary and secondary care as well as private and public hospitals were detected (Jansson et al., 2019). The majority of patients felt that communication between different stakeholders and patients should be improved. In addition, the majority of patients preferred remote visits and the use of (live) chat services, especially in rural areas while the rest of the patients preferred phone conversations and face-to-face meetings instead of remote visits and chat services.

Identified aspects of patient experiences regarding feedback were related to giving and receiving feedback. During the last decade, patients are increasingly being asked for feedback about their healthcare experiences. In addition, patients have been willing to provide feedback about the safety of their care. However, improvements, based on the feedback, have been difficult to make (Sheard et al., 2017; Sheard, Peacock, Marsh, & Lawton, 2019). In addition, we found that patients themselves wanted to receive feedback. In the literature, patients have viewed positive feedback from clinicians as an important acknowledgement of their efforts, which might increase their commitment to the regimen (Sibbern et al., 2016). Moreover, favourable attitudes towards digital feedback were high. These findings reflect citizens' increased expectations related to the availability of digital services, because they have recently become so common in other areas of life. This is an important finding considering that the age range in our study was from 56 to 76 years.

5.3 Strengths, limitations and trustworthiness

This study has limitations due to its design, methods and analysis. Firstly, the interviews were conducted within a single hospital: for this reason, organisational policies or aspects of organisational culture that are unique to this organisation may not reflect experiences in other environments. However, many of the themes reported and identified in the current work align with the existing literature. Secondly, the topic guide was not pilot-tested. Thirdly, the transcripts were not returned to the patients for comment or correction. However, because the transcripts were transcribed verbatim from the recordings, they can be considered reliable sources of information of the experiences of the healthcare personnel. Fourthly, there is still a lack of long-term outcomes. Finally, results showing satisfaction have significant limitations. In particular, patients' scores are typically biased to extremely positive responses due to limited sample size and the objective evaluation of services received. Generally, however, the information power and saturation achieved demonstrated a sufficient sample size.

6. Conclusion

This paper contributes original evidence to the limited literature on the patients' satisfaction and experiences during an elective primary fast-track THA/TKA journey. The findings suggest that patients are highly satisfied. However, a closer analysis of the patients' experiences reveals challenges and suggestions on how they could be solved, often involving digital technologies. The results not only increase understanding of the patient

experience, but also how to link patient experience to patient safety and clinical effectiveness, and pinpoint the issues on how the patient experience could be improved.

7. Relevance to clinical practice

This study has international relevance for nursing practice. As the number of TJAs grows (Kurtz, Ong, Lau, Mowat, & Halpern, 2007; Culliford et al., 2015), patients and their families need to take ever greater responsibility for their own care, from advance preparation to rehabilitation. The findings of the study identified eight main categories of experiences that patients perceive during an elective primary fast-track THA/TKA journey that can be used to organise work (e.g. referral and waitlist management, self- and direct scheduling, stepwise admission, synchronisation of activities, mobility aids rental), improving patient-clinical communication (e.g. digital notice of appointment, remote visits, chat services), fostering engagement (e.g. digital checklists with reminders, digital monitoring of pain, discharge criteria, and rehabilitation, daily targets, peer support), and improving patient centredness (e.g. preliminary questions, patient-centred workflow tasks, personal targets for rehabilitation, alternative exercises).

Although the focus in this study was THA and TKA processes, the results can also be useful in other specialisms. Some of the findings from this study have already been implemented to enhance the service. The findings indicate that there is a need to evaluate the long-term recovery and rehabilitation through the first year. In addition, the exploration of patients' experiences of outpatient arthroplasty and comparisons of face-to-face versus digital patient education on fostering engagement are warranted. Overall, the literature is sparse on patient experiences and perceived value of eHealth solutions. One study by Zheng et al. (2018) showed that the guidelines for accessible content include large print, simple language, and easy navigation meanwhile the medical terminology should be avoided as it is usually a significant obstacle for patients. Ehealth is implicit in reported levels of patient satisfaction (Russell, Buttrum, Wootton, & Jull, 2011; Bini & Mahajan, 2017; Zheng et al., 2018), improvements in objectively measured patient outcomes, quality of care, and healthcare utilization (Russell et al., 2011; Bini & Mahajan, 2017; Neame, Chacko, Surace, Sinha, & Hawcutt, 2019). The strength of reported evidence is limited by the study designs that have been utilized (Neame et al., 2019).

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Table 1. Semi-structured interview frame.

Research topic	Question	Follow-up probes/prompts
Demographics	Age	
	Gender	
	Type of surgery (THA/TKA)	
	Previous surgical experience	
	Occupational group	
	Living status	
	Place of residence	
Gaming experience	Do you play games?	1. What and how often?
		2. How important are different game elements for you?
Experiences of the surgical care journey	What kind of expectations, questions, concerns or fears did you have when you received the referral?	1. Did you search for information? 2. How were your expectations, questions, concerns or fears taken into consideration?
	What kind of expectations, questions, concerns or fears did you have when you arrived at the pre-operative surgical visit?	1. Did the appointment meet your expectations? 2. How were your expectations, questions, concerns or fears taken into consideration? 3. Do you feel that you were allowed to participate in the surgery decision? 4. Did you receive help from somebody other than hospital personnel regarding the appointment? From whom?
	What kind of expectations, questions, concerns or fears did you have about your illness, treatment or surgery?	1. Did the waiting time meet your expectations? 2. Did you search for information about your illness, hospital or personnel during the waiting time? Where? 3. How were your expectations, questions, concerns or fears taken

		<p>into consideration?</p> <p>4. How could the digital patient journey solution be used to support you with the tasks that were directed to you (e.g. getting aids, skin and tooth care, medicines, laboratory tests)?</p>
	What kind of expectations, questions, concerns or fears did you have when you arrived at the ward?	<p>1. Did the surgery day and the ward meet your expectations?</p> <p>2. How were your expectations, questions, concerns or fears taken into consideration?</p> <p>3. What kind of challenges you have in meeting the discharge criteria?</p>
	What kind of expectations, questions, concerns or fears did you have regarding your discharge and rehabilitation?	<p>1. Did the discharge and rehabilitation meet your expectations?</p> <p>2. What kind of challenges have you met after discharge or during rehabilitation?</p> <p>3. How were your expectations, questions, concerns or fears taken into consideration?</p> <p>4. Did you receive help from somebody other than hospital personnel regarding coping at home and rehabilitation? From whom?</p> <p>5. Did you benefit from the control visit, and did you receive enough information during the visit?</p>
Improvement suggestions and potential value of the digital patient journey solution	How could the digital patient journey solution meet your expectations, questions, concerns or fears before and during the clinic appointment, before the surgery, during the hospital stay and after discharge?	<p>1. How could the digital patient journey solution be used for navigation?</p> <p>2. What could the digital patient journey solution provide during the waiting time?</p> <p>3. How could the digital patient journey solution be used for monitoring the waiting time?</p> <p>4. How could the digital patient journey solution be used for pausing the medications?</p>

	Is there room for improvement in the communication between the patient and the hospital?	<ol style="list-style-type: none"> 1. How could the digital patient journey solution could be used to support the communication? 2. Would you be interested in contacting the hospital remotely, e.g. through video, if it were possible?
	Is there room for improvement in the patient counselling?	<ol style="list-style-type: none"> 1. How could the digital patient journey solution could be used to support patient counselling?
	Would you be interested in monitoring your health and well-being after the surgery?	<ol style="list-style-type: none"> 1. How could the digital patient journey solution could be used in monitoring health and well-being?
	How could the digital patient journey solution be used for supporting mobility during the hospital stay?	
	Are you familiar with the discharge criteria?	<ol style="list-style-type: none"> 1. Have you been monitoring them? 2. Do you feel that you can have an influence on meeting the criteria? 3. Would you be interested in monitoring the criteria through the digital patient journey solution?
	How you are going to use the guidance received at the rehabilitation?	<ol style="list-style-type: none"> 1. How could the digital patient journey solution support rehabilitation?
	Would you be interested in monitoring your health and well-being long after the surgery at home or during follow-up treatment?	<ol style="list-style-type: none"> 1. How could the digital patient journey solution help in that?
Patient satisfaction	How would you rate your patient experience using a scale from 1-10?	<ol style="list-style-type: none"> 1. Why did you give this score?
	What problem or challenge should the hospital solve first, and why?	
	How did the treatment that you received at the hospital meet your expectations?	<ol style="list-style-type: none"> 1. Did you feel that the personnel considered your wishes and needs sufficiently? 2. What do you wish would be done otherwise?
	Do you find the care journey transparent?	<ol style="list-style-type: none"> 1. Should the transparency be improved, and how could the digital patient journey solution help in that?

	If you had the digital patient journey solution in use, what benefit could it provide to you? (the digital patient journey solution is shown to the patient)	
	Do you know how you can give feedback to the care unit?	1. Could the digital patient journey solution help in giving feedback?
	Was it difficult to follow the self-care instructions, e.g. related to skin care?	
	Do you feel that you can influence treatment outcomes with your own actions?	
	Have you aimed at making lifestyle changes during the care journey?	
	Would you wanted to have more support in making the lifestyle changes?	
	How could the digital patient journey solution influence your behaviour (e.g. related to smoking cessation, losing weight, increasing activity, making a surgery decision)?	1. What should the digital patient journey solution then provide, or how it should function?

Table 2. Example of inductive content analysis of experiences.

Main category	Generic category	Subcategory	Description
Meeting Health Care Guarantee	Referrals	Referral returned	Referrals were returned to primary care (due to lack of anamnestic information) causing delays and several (unnecessary) follow-up calls by the patients.
		Referral not arrived	Referrals failed to arrive at secondary care, causing delay and several (unnecessary) follow-up calls by the patients.
	Waiting list	Triaging	Six months' waiting time from treatment ascertainment to treatment was considered too long and patients tried to hasten the triaging of care by contacting the hospital via phone and listing the reasons for urgent need for surgery.