

REVIEW ARTICLE

# Review and synthesis of the experience of patients following total hip or knee arthroplasty in the era of rapidly decreasing hospital length of stay

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## Abstract

**Aim:** The hospital length of stay for orthopedic surgery has been decreasing during the last couple of decades. Therefore, this study was performed to explore the postoperative experiences of adult/older patients (age  $\geq 20$  years) with osteoarthritis who underwent total hip or knee arthroplasty, focusing on the first 6 weeks following discharge.

**Methods:** A systematic literature search on qualitative studies was conducted using six databases, such as Medline, CINAHL and Mednar. Verbatim interview data and themes or subthemes related to the patients' experience after discharge were extracted. Content analysis was used to code interview data. Codes similar in meaning were grouped, and subcategories were formed. These subcategories were then grouped into categories.

**Results:** Sixteen qualitative studies with 253 participants were analyzed. In total, 136 codes were generated and formed 29 subcategories. Six categories were generated: (a) postoperative pain and medication; (b) difficulty in performing activities of daily living; (c) appreciation for support and difficulties associated with receiving support; (d) variability in recovery process and information-seeking; (e) lack of patient-centered care; and (f) transportation problems and social isolation.

**Conclusion:** Our review suggests that prospective patients and their caregivers need individually tailored presurgical education and advanced planning for postsurgical reduced mobility.

## KEYWORDS

patient education as topic, postoperative period, qualitative research, total hip replacement, total knee replacement

## 1 | INTRODUCTION

As the population ages, the number of patients with osteoarthritis (OA) is increasing. Osteoarthritis results in deterioration of the joint cartilage, leading to chronic pain and disability, and is the most common cause of disability in older adults (Kremers et al., 2015). Major risk

factors for OA are obesity, metabolic diseases, older age, and female gender (Ethgen, Bruyère, Richy, Dardennes, & Reginster, 2004). A population-based epidemiological study of symptomatic OA showed that the incidence of OA was 0% at the age of 20 years, increased with increasing age, and peaked at the age of 70 years (Litwic, Edwards, Dennison, & Cooper, 2013). Guidelines

for the management of OA recommend exercise and weight loss as self-management therapy and the use of local and topical analgesics for pain management (Hochberg et al., 2012; National Institute for Health and Care Excellence, 2014). However, nonsurgical treatments gradually become ineffective for relieving pain, stiffness, and reduced function, and these symptoms substantially decrease quality of life in patients with OA. At this point, joint replacement surgeries are considered. Osteoarthritis accounted for 70% of the joint replacement surgeries performed in the United States in 2014 (American Joint Replacement Registry, 2016).

In the United States alone, it was estimated that 4.7 million people underwent total knee arthroplasty (TKA) in 2010, while 2.6 million underwent total hip arthroplasty (THA) (Kremers et al., 2015). In North America, the mean age of the patients who underwent THA or TKA ranged from 65 to 67 years (American Joint Replacement Registry, 2016; Canadian Institute for Health Information, 2015). Most research on patients undergoing these procedures is quantitative and has focused on postoperative improvement of health-related quality of life and physical function (Ethegen et al., 2004). Systematic reviews report substantial improvements in the health-related quality of life and physical function by 6 months after THA/TKA and indicate that these parameters continue to improve for up to 10 years postoperatively (Shan, Shan, Grahamx, & Saxena, 2014; Verra et al., 2016). In contrast, less attention has been paid to the patients' experience with THA/TKA in the postoperative period.

In the past decade, length of hospital stay has substantially decreased. In 2002, the postoperative length of stay in a Danish hospital ward was 8.6 days for hip replacement and 8.0 days for knee replacement, and it decreased to 3.3 days for hip replacement and 3.1 for knee replacement (Specht, Kjaersgaard-Andersen, & Pedersen, 2015). Outpatient THA and TKA are currently offered for selected patients in the United States and some European countries; that is, patients are discharged within 24 hours after admission (Bert, Hooper, & Moen, 2017; Vehmeijer, Husted, & Kehlet, 2018). In the United States, 15% of primary hip and knee replacements were outpatient surgeries in 2016, and by 2026, an estimated 51% of joint replacements will be outpatient surgeries (Bert et al., 2017).

Recent qualitative research has focused on the problems resulting from shortening the length of stay for patients who underwent THA/TKA (Causey-Upton & Howell, 2017; Reay, Horner, & Duggan, 2015; Webster et al., 2015). When the hospital stay was shortened, the pain management and rehabilitation exercise program managed by healthcare professionals in the hospital

became the patients' responsibility. Patients were mostly unprepared and undereducated about pain medication management and use of assistive devices (Causey-Upton & Howell, 2017; Marcinkowski, Wong, & Dignam, 2005), and those who lived alone felt isolated because of limited mobility (Webster et al., 2015). An understanding of patients' postsurgical experiences is critical for healthcare professionals to better understand how to educate patients to prepare for and cope with difficulties in the postsurgical period.

Some quantitative (Walker, Heslop, Chandler, & Pinder, 2002; Hawker et al., 2013) and qualitative research (Kennedy et al., 2017; Webster et al., 2015) has treated THA and TKA as one procedure within a study; this trend is the same in qualitative (O'Neill, Jinks, & Ong, 2007) and quantitative systematic reviews (Santaguida et al., 2008). A study in the Netherlands explored problems experienced during the 6-week discharge period by patients who had undergone THA or TKA and identified pain, physical therapy, sleep, and the use of an assistive device as major problems (van Egmond, Verburg, Vehmeijer, & Mathijssen, 2015). They reported only minor differences in the problems encountered by patients who had undergone THA versus TKA, such as sleeping positions. Furthermore, most of the problems related to self-care were resolved by the end of 6 weeks.

A review of the relevant studies evaluating patients' experiences related to THA/TKA would facilitate an understanding of the difficulties that patients face in the postsurgical period and may provide healthcare professionals with important information for patient education. This review was guided by a priori published protocol (Makimoto, Fujita, & Konno, 2018).

## 2 | METHODS

A systematic literature search was conducted using seven databases, including MEDLIN, CINAHL, Scopus, and Mednar (Appendix I, Table A1-Table A3) on March 24, 2017, and an additional search was conducted on March 26, 2020 to update the search. The year was limited to the past 15 years of publications to reflect the current orthopedic practice. The database search itself was not limited to English to eliminate language bias.

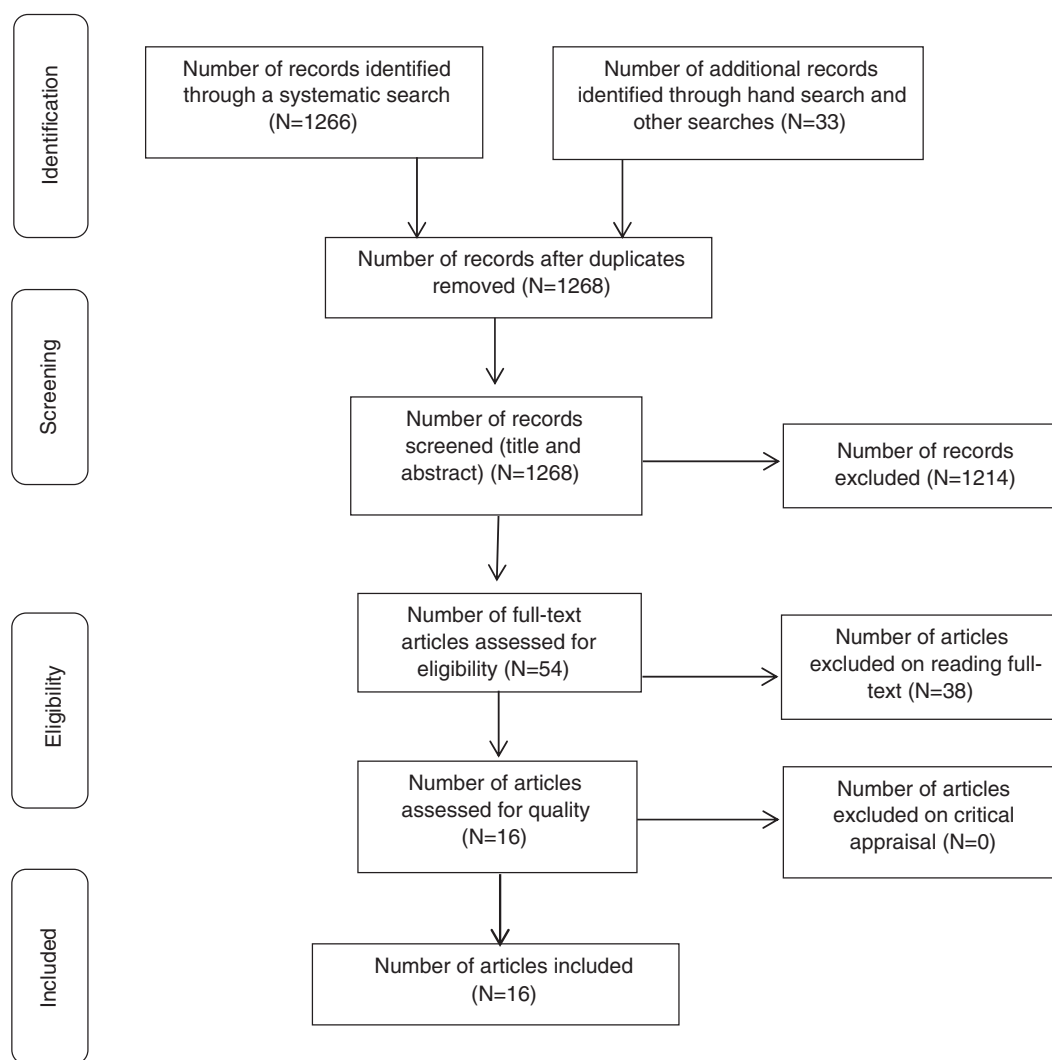
Study selection was based the following inclusion criteria: (a) qualitative studies on community-dwelling adult patients ( $\geq 20$  years) who underwent joint replacement surgery; and (b) studies describing the patients' experience in the first 6 weeks after discharge. The exclusion criterion was studies that only dealt with rare experiences such as major surgical complications.

Titles and abstracts were screened by two independent reviewers to determine whether the studies met the inclusion and exclusion criteria. Studies that met the inclusion criteria were retrieved in full and were assessed based on the inclusion criteria. Studies that did not meet the inclusion criteria were excluded, and the reasons for exclusion from the review are provided in Appendix II. Two independent reviewers appraised the selected studies for methodological quality using the Joanna Briggs Institute Qualitative Assessment and Review Instrument (Lockwood, Munn, & Porritt, 2015).

The extracted data included specific details about the populations, context, culture, geographical location, study methods, and phenomena of interest relevant to the review question and specific objectives. All the illustrations, that is, verbatim interview data, related to the patients' experience after discharge were copied from the pdf files of the selected studies and were pasted to the Excel file. One illustration was copied to one Excel cell

and was organized by the first author. If the illustration included words or contents such as “go home” or “discharged,” this was considered to have occurred within 6 weeks. Illustrations pertaining to reduced mobility or postsurgical pain were assessed by expert orthopedic research authors according to the timeline for the recovery from THA or TKA within 6 weeks reported in the recent literature (Klapwijk, Matheijssen, van Egmond, & Verbeek, 2017; Poitras, Wood, Savard, Dervin, & Beaulé, 2016).

The current review initially intended to conduct a meta-synthesis. After reading papers, we came to realize the substantial differences in levels of abstraction in findings among studies and thought it difficult to synthesize findings with meaningful results. We used content analysis for coding to summarize the interview data, that is, illustrations (Elo & Kyngas, 2008). For example, for the following interview data, “I wasn't really ready to go home, but they sent me home anyway. There was just no



**FIGURE 1** PRISMA flow chart of study selection and inclusion process

**TABLE 1** Summary of studies reviewed by ascending year of publication

Authors	Method	Country	Sample size	Length of stay	Interval between the date of surgery and interview	Mean age/ (age range)	Gender	Experience covered
Fielden, Scott, & Horne, 2003	Qualitative design	New Zealand	33	2–7 days	On the day of discharge, 4–8 weeks after THA	>18*	NA	Pre and post THA
Marcinkowski et al., 2005	Grounded theory	New Zealand	9		3 weeks - 3 months after primary TKA	69 (median); (54–85)	5 women, 4 men	Pre and post TKA
Jacobson et al., 2008	Qualitative	USA	27		2 months post TKA	> 21*	NA	Pre and post primary TKA
Grant, St John, & Patterson, 2009	Grounded theory	Australia	10		4–6 months post primary THA	(65–84)	6 women, 4 men	Post THA
Perry, Hudson, & Ardis, 2011	Interpretive phenomenology	New Zealand	11	4–12 days	30–40 days post-discharge	76 (mean); (66–88)	8 women, 3 men	Pre and post THA/TKA
McHugh & Luker, 2012	Qualitative	United Kingdom	25		6–8 month post THA	66.3 (mean); (48–82)	15 women, 10 men	Pre and post THA
Johnson, Horwood, & Goberman-Hill, 2014	Phenomenology	United Kingdom	24	3–18 days (mean = 6)	2–4 weeks post THA/TKA	(26–92)	13 women, 11 men	Pre and post THA/TKA
Kendall, 2015	Grounded theory	Canada	10		1 month post THA	40–70*	10 women	Pre and post THA
Webster et al., 2014	Qualitative design, secondary analysis	Canada	12	4 days	8 months post THA/TKA	40–80*	6 women, 6 men	Pre and post THA/TKA
Reay et al., 2015	Descriptive phenomenological method	Australia	10	<5 days	>1 week post THA	(65–85)	6 women, 4 men	Post THA
Johnson, Horwood, & Goberman-Hill, 2016	Phenomenology & hermeneutic	United Kingdom	8	3–10 days	2–4 weeks post TKA	(61–79)	3 women, 5 men	Pre and post TKA
Engström & Karlsson, 2017	Qualitative method	Sweden	5		<3 months post TKA	(62–84)	5 women	Pre and post TKA
Gautreau, Aquino-Russell, Gould, & Forsythe, 2017	Grounded theory	Canada	4		6–14 weeks post TKA	58.5 (54–66)	3 women, 1 man	In hospital and post TKA
Goldsmith et al., 2017	Qualitative design	Canada	45		8 and 14 months post TKA	65 (mean)	30 women, 15 men	Post TKA
Sjoveian & Leegaard, 2017	Qualitative descriptive	Norway	12	Fast track	3 months post THA/TKA	68 (mean); (45–83)	6 women, 6 men	Post THA/TKA
Specht, Agerskov, Kjaersgaard-Andersen, Jester, & Pedersen, 2018	Phenomenological-hermeneutic	Denmark	8	1–2 days	2- and 12-week post THA/TKA	63 (mean) (42–82)	4 women, 4 men	Post THA/TKA

Abbreviations: TKA = total knee arthroplasty, THA = total hip arthroplasty, \*Eligibility criteria, NA = Not available.

way I could even get up to get a glass of water...," the corresponding finding was "reduced length of stay." The interview data were too abstract for a finding for our study aim, and this illustration was coded as "Not ready to go home." Each illustration was coded, and codes similar in meaning were grouped, and subcategories were formed. These subcategories were then grouped into categories.

### 3 | RESULTS

Figure 1 shows the search results and the process of selecting the papers published in English. The number of non-English publications was 35. By screening the title and abstracts, we found one potentially relevant Norwegian study in which the interviews were conducted 5 months postoperatively (Larsson, 2007).

Sixteen studies were selected for quality appraisal. These studies adequately presented the participants' voices, and appropriate ethical considerations were documented. Overall, the conclusions were logically derived from the analysis and interpretation of the data. Therefore, all 16 studies were considered as being of reasonable quality and subsequently included in the review (Appendix III).

Of the 16 studies, seven used descriptive qualitative approaches, four were grounded theory studies, and five were phenomenological studies (Table 1). These studies were conducted in Canada ( $n = 4$ ), New Zealand ( $n = 3$ ), the United Kingdom ( $n = 3$ ), Australia ( $n = 2$ ), and other countries ( $n = 4$ ). The total number of participants was 253, and the sample size ranged from five to 45 (median, 11.5). The mean or median age was  $\geq 60$  years in six studies; the remaining studies only reported the age range or eligibility criteria. In terms of the gender distribution, 12 studies included both men and women, three studies only included women, and two studies did not mention the gender distribution. Of the 193 participants with known gender, 62.2% were women. The types of procedures performed were THA ( $n = 5$ ), TKA ( $n = 6$ ), and THA/TKA ( $n = 5$ ). Eleven studies covered both the preoperative and postoperative periods, and the remaining five studies only examined the postoperative period. The hospital length of stay varied from 1 to 18 days, and the interval between the date of discharge and the date of interview ranged from 2 weeks to 8 months postoperatively.

#### 3.1.1. | Results of the summary of qualitative research findings

In total, six categories were generated from 29 subcategories based on 136 codes. The number of codes reflects the researcher's focus on the topic, such as pain

**TABLE 2** "Postoperative pain and medication" category and subcategories with illustrations

No.	Subcategory	Illustrations	Authors
1	No pain or various types of pain	<p>"I have not had pain in the wound at all"(2 weeks, P5) (p.16)</p> <p>"Stinging pains and burning sensation"(P#1), or "the knee was sore... there was some numbness" (P#6), "nagging and aching pain... as a barbed wire inside the joint...radiating pain downwards the leg" (P#9).</p> <p>"Knee pain because of swelling" (P#11)(p. 31)</p>	<p>Specht et al., 2018</p> <p>Sjoveian &amp; Leegaard, 2017</p>
2	Non-personalized pain management	<p>"...when it hurts, you can hardly manage the pain yourself, it runs in a vicious screw...I had to do exercises...I had so much pain and there wasn't enough pain killers at all, then the general practitioner came and gave me extra morphine...just an injection"(2 weeks, P6) (p.16)</p>	Specht et al., 2018
3	Try to follow instructions or reduce medication	<p>How often were you taking them then? Mr. F: Oh, I was taking them as in hospital.... Oh I did [regularly] oh yes... yes, I did not deviate off that at all, no, we had the first, at least the first three or four days definitely stuck to that regiment (p. 97)</p> <p>I am taking a little bit less if I can, I have cut back on the ibuprofen tablets, although I did take one today; I did not take two yesterday, which I should have done. And this is purely just so that I can start to get myself motivated back to not taking tablets and dealing with the pain if I can. (Mr. M) (p. 97)</p>	<p>Johnson et al., 2014</p> <p>Johnson et al., 2014</p>
4	Unable to recall instructions	<p>"I really cannot remember because I was given some tablets that I should bring home because it was Sunday... so I should talk with the family doctor about it later" (P#12) (p. 33)</p>	Sjoveian & Leegaard, 2017



medication (Johnson et al., 2014), and the number of illustrations reported by the authors. The categories were organized in a post-discharge time sequence from “post-operative pain and medication” to “transportation problems and social isolation.”

**Category I: Postoperative pain and medication: variability in pain experience is reported, and the view on the pain medication also differs among patients.**

Thirty-nine codes related to pain and medication were abstracted, and most of the codes were from two recent studies on patients with fast-track ( $\leq 2$  days of hospital stay) (Sjoveian & Leegaard, 2017; Specht et al., 2018) or the study focusing on medication after discharge (Johnson et al., 2014). This category consists of four subcategories (Table 2). One subcategory described the experience of “no pain or various types of pain” (number of codes,  $n = 13$ ), and the other subcategory described the consequence of “non-personalized pain management” ( $n = 2$ ). The subcategory “try to follow instructions or reduce medication” ( $n = 21$ ) reflected the differences in the patients' attitudes toward pain medication. Some participants were “unable to recall instructions” ( $n = 3$ ). In short, variability in pain experience was reported, and the views on the pain medication also differed among patients.

**Category II. Difficulty in performing activities of daily living: carrying out activities of daily living is difficult, and patients need to be assessed for appropriate assistive devices to cope with reduced mobility. Patients should be encouraged to make advanced preparation for reduced mobility.**

Seventeen codes, mostly describing difficulties in carrying out activities of daily living after discharge, were abstracted (Table 3). This category was generated from six subcategories: “not ready to go home” ( $n = 1$ ), “difficulty in getting around” ( $n = 5$ ), “fear of falls and dislocation” ( $n = 3$ ), “difficulty in meal preparation” ( $n = 1$ ), “problem with assistive device” ( $n = 3$ ), and “advanced preparation for postoperative reduced mobility” ( $n = 4$ ). “Not ready to go home,” “fear of falls and dislocation,” and “advanced preparation for postoperative reduced mobility” were grouped in this category because they were related to dependence in activities of daily living. There was no description regarding to what extent advanced preparation helped the patients in times of reduced mobility.

**Category III. Appreciation for support and difficulties associated with receiving support: most patients receive enough support from family members or friends to cope with the reduced mobility, while some have no one to depend on. Patients need to be assessed for care capacity at home, and**

**TABLE 3** “Difficulty in performing activities of daily living” category and subcategories with illustrations

No.	Subcategory	Illustrations	Authors
1	Not ready to go home	“I wasn't really ready to go home but they sent me home anyway. Just there was no way I could even get up to get a glass of water. I did not feel well, I did not feel strong. They had given me [pain medication], so I wasn't in pain. But I could not eat, I could only eat very sparingly, and I was very, very weak” (#8) (p. 62)	Webster et al., 2014
2	Difficulty in getting around the house	“Bending the operated knee going down stairs, then moving the other leg to the next step, you get ALL the weight while bending the knee ... that is the worst part” (P#8) (p. 32)	Sjoveian & Leegaard, 2017
3	Fear of falls and dislocation	You feel very vulnerable...It's a bit daunting especially when you are on crutches, and you are trying to get round (female 58 years) (p. 1354)	McHugh & Luker, 2012
4	Difficulty in meal preparation	“Making food, that was perhaps what was the worst for me... standing by the stove or at the kitchen bench making food with two crutches” (P#11) (p. 32)	Sjoveian & Leegaard, 2017
5	Problem with assistive device	“Well one thing about these chairs [referring to the shower chair] you lend us it's too small, too big for our shower, so I just have to clamber and hang on as best I could, the only problem the shower. Things got moved around a bit. My son moved things for us, moved the bed over so that I can get the frame in there” (p. 9)	Reay et al., 2015
6	Advanced preparation for postoperative reduced mobility	“I guess one is always glad to go home, but living alone you have to plan ahead. ... I had lots of frozen dinners and things like that. ... I think I was even using paper plates just to avoid doing dishes” (#1) (p. 62)	Webster et al., 2014

**TABLE 4** “Appreciation for support and difficulties associated with receiving support” category and subcategories with illustrations

No.	Subcategory	Illustrations	Authors
1	Appreciation for family support	“I had the walker, and then I had the high toilet seat ... and I slept downstairs with a bathroom. ... my wife slept in a chair next to me. ... my wife would have to help me stand up. ... so I said to my wife, ‘sweetheart, you have been such a wonderful nurse to me I’m going to take you to [restaurant] for dinner’” (p. 62)	Webster et al., 2014
2	Support from nonfamily members	“Our neighbors are all very nice they help out with the bins, they take them down to the street, then they bring them up again, you know. I mean it’s a steep climb. People help each other unless you are a hoon” (p. 9)	Reay et al., 2015
3	Over-caring or unnecessary support	Mr. Cook (2): “Well my wife has been working like a trooper you know. I mean, trouble is she will not let me do stuff...going to the shop. Um, you know getting a magazine, treating me like a baby. Um, I mean just doing extra.... I mean I cannot drive a car so, you know, I used to do virtually all the driving. Now my wife is doing all the driving” (p. 2557)	Johnson et al., 2016
4	Stressful caring experience for inexperienced caregivers	(Debbie) “husband is feeling stressed about taking care of me. He is tired. ... Baby monitor [sic] in case husband does not hear me” (p. 124)	Kendall, 2015
5	Hesitating to ask for help	[name of her son] and [name of daughter-in-law], “that’s his wife, have to come from [name of the town]. You know, when they have had a full week, uh and they are both, she’s as busy as he is...So by the time they drive down here I feel guilty because it’s the only spare time they have..I do not think it’s fair to burden them. I really do not because they got their lives to lead and you know, I think somebody complaining you know. I mean they always ask and I say “I’m fine, I’m fine”” (Mrs Evans, 1) (p. 2558)	Johnson et al., 2016
6	No one to depend on for support	“It was difficult the first few weeks.. . It was, you felt you had nobody to help you, you were just on your own. My husband he’s got Alzheimer’s and he cannot do much.. . There’s a lot to think about and a lot to do when you come (home), especially in my case having me back (spinal stenosis) as well, I’ve got the two, if I had not got me back my hip would be alright. I did not go to bed for three nights I could not go, could not go, could not get in and out of bed, just sat in the chair” (p. 135)	Reay et al., 2015

**TABLE 5** “Variability in recovery process and information-seeking” category and subcategories with illustrations

No.	Subcategory	Illustrations	Authors
1	Feeling distressed over incapacity	“Well not being able to do things. You feel disabled. Like I could not pick things up. I could not plug the iron in to do the ironing” (female 62 years) (p. 1354)	McHugh & Luker, 2012
2	Feeling tired and frustrated over slow progress	“I thought gradually I’ll be able to pick up and get back to normal and it did not happen fast enough... there was this awful feeling that I was grounded and that I was never going to be able to live normally again... And I was screaming to drive... My first achievement was shopping but propped up by the trolley” (female 69 years) (p. 1353)	McHugh & Luker, 2012
3	Feeling improvement and happy to be home	“She (his sister) was happy to go home. I got out of hospital on the Wednesday, and I’d say a week and a half later she was happy to go home knowing that I could handle everything myself. I could shower myself without any problem” (p. 1616)	Grant et al., 2009
4	Developing camaraderie and need a support group	“One of the things they worked on [in physiotherapy] that I found very helpful, so did other people, was they developed a camaraderie, this big family get-together type of thing, to talk to people, compare notes and get a little encouragement from patient to patient. So it wasn’t just an isolated one-on-one therapist to patient. There was a lot of dialog between patients” (p. 8)	Goldsmith et al., 2017
5	Need to know about the recovery process and information-seeking	<p>“But my biggest thing was again the internet. I would go on and look at successes... I looked a lot at different people’s experiences... there’s a few video clips of people which one was so accurate.. You know sort of I could identify with that” (female 58 years) (p. 1354)</p> <p>“There was a dearth of information about what to expect, in terms of progress ... I would like to have had some encouraging picture of the future... how progress would be, and various milestones, and right timings” (83 years female, hip) (p. 919)</p>	<p>McHugh &amp; Luker, 2012</p> <p>Perry et al., 2011</p>



TABLE 6 “Lack of patient-centered care” category and subcategories with illustrations

No.	Subcategory	Illustrations	Authors
1	Instructions not tailored to the individual or conflicting information	“I get the impression that everybody’s treated as though they are on a level playing field after they have had the operation, but I may be wrong. But with the attention that I had, it seems a generalization that this is what you do ‘sleep with the pillow, do not cross your legs, give it 6 weeks, use your crutches, ‘that’s it in a nutshell. It’s not individualized” (p. 433)	Fielden et al., 2003
2	Poor discharge plan	“It was a Sunday that I was discharged. Went to my pharmacy with one of the prescriptions and they said, “well, we do not have that. That’s a very special item. You can only get that in special pharmacies.” ... my wife had to drive ... about 10, 15 miles away when the [pharmacy] phoned around and found it ...” (#8) (p. 62)	Webster et al., 2014
3	Inadequate care plan for physiotherapy	“They were sending in a referral to [hospital name] for physio. I was given a phone number to call. So the first week home I called and they said there is nothing available yet...I was getting very desperate and in about the fourth week I started calling other hospitals... I was almost in tears. I was at my wits end, did not know what to do” (p. 8)	Goldsmith et al., 2017
4	No one to consult for minor problems	“There is nobody to talk to. You call the surgeon and unless there is like a major problem they do not want to hear it from you because all they care about is what the X-ray shows and the X-ray shows perfect. It’s fine. The GPs, they did not do the surgery so it’s more pain control—Like, ‘do you want stronger pain pills?’ And I said no. I do not want to just cover up the symptoms. I need to know what is going on. So you can get on the internet and check things, but there is nobody to really talk to about the pain, the swelling” (p. 7)	Goldsmith et al., 2017

local resources should be identified for those in need.

Twenty-seven codes were abstracted, and six subcategories emerged (Table 4). Most of the codes were related to appreciation for dedicated support from family members, which formed the subcategory “appreciation for family support” ( $n = 13$ ), or support from various sources such as neighbors and friends, which were grouped as “support from nonfamily members” ( $n = 4$ ). Some expressed care received as “over-caring or unnecessary support” ( $n = 3$ ), and others expressed concerns for the burdens on family caregivers, which were grouped as “stressful caring experience for inexperienced caregivers” ( $n = 2$ ). Codes related to difficulty in asking for help were grouped as “hesitating to ask for help” ( $n = 3$ ), and the code “no one to ask for help” formed the subcategory “no one to depend on for support” ( $n = 2$ ).

**Category IV. Variability in recovery process and information-seeking: there is substantial variability in the recovery rate. Some are frustrated over slow recovery, and others experience a sense of recovery on a daily basis. Patients are anxious to know that their recovery is within the expected range. Patient support groups are needed to allow patients to share their experiences about their recovery process.**

Thirty codes related to the recovery process were abstracted, and five subcategories emerged (Table 5). Eleven codes related to distress and frustration over the recovery process were grouped into the following two subcategories: “feeling distressed over incapacitation” ( $n = 3$ ) and “feeling tired and frustrated over slow progress” ( $n = 8$ ). In contrast, 12 codes described a positive experience of recovery, which formed the subcategory “feeling improvement and happy to be home.” Three codes related to empowerment by peers were grouped into the subcategory “developing camaraderie and need a support group” and four codes pertaining to information needs formed the subgroup “need to know about the recovery process and information-seeking.”

**Category V. Lack of patient-centered care: patients suffer from poorly coordinated care, such as a poor discharge plan and inadequate care plan for physiotherapy.**

Fourteen codes were related to lack of patient-centered care, and four subcategories were generated (Table 6). Five codes related to dissatisfaction about generic instructions formed the subcategory “instructions not tailored to the individual or conflicting information.” Five codes reflecting perceived poor post-discharge service were grouped into the subcategory “poor discharge plan,” and four codes related to difficulty in making an appointment for physiotherapy were grouped as

TABLE 7 “Transportation problem and social isolation” category and subcategories related to patients’ experiences with total knee arthroplasty / total hip arthroplasty in the postoperative period

No.	Subcategory	Illustrations	Authors
1	Lack of transportation or drove against instruction	“I should’ve gone yesterday but I could not get transport, my wife cannot drive all the way over there” (p. 9).	Reay et al., 2015
		“I was frustrated not being able to go out I did drive after a week I have an automatic but it’s my left hip, I know I’m not supposed to” (p. 5).	Reay et al., 2015
2	Problem with driving	“Getting into the car I found difficult, even though I’d read and read how to do it. That was a bit painful and that was a bit of worry” (p. 434)	Fielden et al., 2003
3	Hate to be dependent on others for transportation	“Not being able to get out, frustrated by not being able to drive, having to rely on others who lead busy lives. I’m very independent and do not like relying on others” (p. 5).	Reay et al., 2015
4	Social isolation because of reduced mobility and lack of transportation	“Before the op, I was out all the time you know, um visiting people, shopping, um, with my darts and my bingo out nearly every day I used to look after him [her grandson] every Tuesday, I’d have him from seven until three and I really miss that. I cannot cope with him ‘cos [sic] he’s everywhere but I really miss him” (p. 136)	Reay et al., 2015

“inadequate care plan for physiotherapy.” One code pertaining to concerns regarding pain or numbness formed the subcategory “no one to consult for minor problems.”

**Category VI. Transportation problems and social isolation: patients with joint replacement in countries with high automobile dependency require advanced planning for transportation taking patients' lifestyle into consideration while driving is restricted.**

Nine codes related to transportation problems and resultant social isolation were abstracted, and four subcategories were formed (Table 7). Five codes related to transportation were grouped into the following three subcategories: “lack of transportation” ( $n = 2$ ), “drove against instruction” ( $n = 2$ ), and “problem with driving” ( $n = 1$ ). Four codes reflecting a profound feeling of social isolation formed the subcategory “social isolation because of reduced mobility and lack of transportation.” “Transportation and social isolation” were from the studies performed in Canada and Australia, which heavily depend on automobiles for transportation. Social isolation is acutely felt by those with an active social life.

## 4 | DISCUSSION

This review of qualitative studies that explored the postoperative experience of patients who underwent THA or TKA. Six categories were formed, and most of them were related to problems of pain management and reduced mobility in the postoperative period, such as “try to follow the instruction or cut back medication” and “difficulty in performing activities of daily living and advanced preparation for post-lower joint replacement reduced mobility.”

The “postoperative pain and medication” category seems to reflect the increasing importance for pain management due to the increasing outpatient joint replacement surgeries. A recent study on patients with THA/TKA reveals that patients expressed concerns about under-treated postoperative pain and the difficulty in weaning from multimodal analgesic strategies (Jansson et al., 2019). Their study also suggests the information given preoperatively was inadequate for dealing with post-discharge problems.

The “difficulty in performing activities of daily living” category contains subcategories related not only to reduce mobility but also to fear of falls, inappropriate devices given. The fall rate among orthopedic patients in the first year after knee replacement was 24.2% in a study from the United Kingdom (Swinkels, Newman, & Allains, 2009). Hip dislocation is a main concern among patients with THA/TKA, and falling is a major cause of

hip dislocation (Jørgensen, Kjaersgaard-Andersen, Solgaard, & Kehlet, 2014). Risk factors for falls in patients with THA/TKA are a history of falls and the use of an assistive device (Swinkels et al., 2009). Fall risk assessment and fall prevention need to be integrated into the discharge plan.

This review also revealed the difficulty in using assistive devices. Lack of patients' involvement in the selection and purchase of assistive devices is one of the issues needing to be addressed. A small survey of nine patients identified four factors associated with the use of adaptive equipment, such as the exclusion of the patient from purchase decisions, the patient's environment, and inadequate instructions (Thomas, Pindlman, & Gardine, 2010).

Advanced preparation for reduced mobility in the post-discharge period reported in the reviewed studies could be used for the preoperative education program, such as the purchase of frozen food and/or assistive devices. The effectiveness of these advanced preparations on relieving the burden of limited mobility needs to be assessed in future studies and to be integrated into presurgical patient education programs.

Another category was “appreciation for support and difficulties associated with receiving support.” During the period of reduced mobility, patients in the present review were mainly supported by family caregivers, and some received support from neighbors, friends, and extended families. However, a qualitative study of the educational needs in Canada revealed that family caregivers wished to know how to help the patient with THA/TKA at home (Soever et al., 2010). Other patients had partners with health problems and worried about the additional burden of complex caring tasks. Thus, the care capacity of household members must be assessed as part of the discharge plan.

The number of codes for “no one to depend on for support” subcategory is small probably because some patients chose not to go through the joint replacement surgery due to the lack of support (Clark et al., 2004). A focus group interview-based study in the Netherlands showed that patients who lived alone required more care and desired either a longer hospital stay or transfer to a nursing home for rehabilitation (van Egmond et al., 2015). However, some patients did not have these options. Additional services are needed to compensate for the absence of caregivers, such as informing available local resources.

The “variability in the recovery process and information-seeking” category revealed contrasting views on the recovery process. Variability in the rate of functional recovery was clearly illustrated in a Swedish diary survey (Klapwijk et al., 2017). By the end of 6 weeks postoperatively, approximately 60% of the patients used no

walking devices, approximately 25% used one crutch, and the remaining proportion still used a walker with wheels or two crutches. Our review and the other studies suggest the need for personalization in rehabilitation taking patients' goals and personal constraints into consideration (Jansson et al. 2019; Specht et al., 2018).

The "lack of patient-centered care" category mainly contains poor care coordination and difficulty in finding a consultant for postoperative pain. Gaps in communication are likely to contribute to poor care coordination. These are not limited to patient-clinician communication, but also information transfer between primary and secondary care (Jansson et al., 2019). The regional care system needs to alleviate the problem as this is beyond the power of a single institution.

Patients expressed the need for a support group during the recovery process, and for some patients, group physiotherapy provided an opportunity to develop camaraderie. Preoperative programs may provide opportunities for patients, physiotherapists, and occupational therapists to discuss the joint replacement experience (Walker et al., 2002). Providing an opportunity for patients to discuss the joint replacement seems to assist in confidence-building for surgery.

The "transportation problem and social isolation" category illustrates the inability of an individual to drive their own car, which deprives the individual of their social life and is a source of great distress, especially for those with an active social life. We found no relevant literature on this topic, although transportation was listed as a presurgical education topic ("transportation available") in a Canadian study (Webster et al., 2014). Use of the internet to connect with family and friends may alleviate social isolation. Patients with THA/TKA could volunteer to talk to patients face-to-face about their experience or through the internet. In any event, candidates for joint replacement probably need an educational program tailored to the individual lifestyle that allows them to plan for and cope with postoperative reduced mobility.

Most of the categories generated are negative aspects of the post-discharge period although fast-track patients tend to report overall satisfaction with care (Specht et al., 2018; Jansson et al., 2019). Patients with high internet literacy can seek information needed. The use of digital technology could be used to ease the problem of pain management and post-discharge rehabilitation, such as telerehabilitation, chat services, remote visits (internet-based face-to-face communication) (Jansson et al., 2019). Digital literacy needs to be assessed for selecting educational material and post-discharge communications so that patients have an option to choose the method of post-discharge communication.

Our review has several limitations. First, the studies were limited to English publications. Screening of the titles and abstracts indicates a small language bias. Second, the included studies were mostly from a single institution with small sample size, and the majority of the studies did not provide the hospital length of stay. Third, the sharp decline in the hospital length of stay in the past decade makes it difficult to summarize the results. Lastly, substantial variations in the medical care system among countries makes it difficult to examine the transferability of our findings.

## 5 | CONCLUSIONS

This study explored the experiences of patients within the first 6 weeks after discharge following THA or TKA. The patients experienced a variety of problems resulting from reduced mobility, and most of them received dedicated support from family members or someone close to them. Some patients had no one to ask for help, and some had a spouse with health problems. Information needed for the recovery process must be covered in preoperative education programs. Furthermore, multiple studies revealed poor care coordination related to physiotherapy. Further research is needed to explore the needs of patients and their caregivers because the pressure to further shorten the length of stay is growing.

### 5.1 | Recommendation for further research

Most of the included studies only provided eligibility for age or the age range. Age affects our expectation of the surgery outcome (Please replace the reference: Fujita, Makimoto, Higo, Shigematsu, & Hotokebuchi, 2009) and impacts the recovery process. Studies should report the mean and standard deviation of the patients' age as well as their age range. The recovery process is affected by the type of anesthesia, type of surgery (THA or TKA, primary or revision), preoperative functional status, comorbidities, age, and other modifiable risk factors such as smoking (Bert et al., 2017; Buirs et al., 2016; Hansen, 2017; Specht et al., 2015). Further research is urgently needed to explore patients' experience after outpatient joint replacement.

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## DISCLOSURE

The authors declare they have no conflict of interest.

## AUTHOR CONTRIBUTIONS

KM, KF, and RK are all members of the working group that developed this review. KM and RK conducted the review, and KF provided input, conceptual advice, and expert opinion on orthopedic nursing and research throughout the review process. All authors read and approved the final manuscript.

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## APPENDIX I: SEARCH STRATEGY

**TABLE A1** Medline search strategies

Search ID#	Search terms
S1	(MH “Arthroplasty, replacement, hip”)
S2	“Total hip arthroplasty” OR “total hip replacement”
S3	THA
S4	S1 or S2 or S3
S5	(MH “Arthroplasty, replacement, knee+”)
S6	Knee N2 (replacement or arthroplasty)
S7	S1 or S2 or S3 or S5 or S6
S8	(MH “qualitative studies+”)
S9	(MH “interviews+”) OR (MH “focus groups”) OR (MH “narratives”) OR (MH “observational methods+”) OR (MH “self report+”)
S10	(MH “nurse–patient relations”)
S11	(MH “patient-family relations”)
S12	Qualitative OR “grounded theory” OR (phenomenological or phenomenological)
S13	S8 or S9 or S10 or S11 or S12
S14	S7 and S13
S15	S7 limiters - publication type: Meta synthesis
S16	S14 or S15
S17	(MH “length of stay”)
S18	S7 and S17
S19	MW psychosocial factors
S20	S18 and S19
S21	S20 not S16
S22	S14 or S15 or S20

**TABLE A2** CINAHL

Search ID#	Search terms
S1	(MH "Arthroplasty, replacement, hip")
S2	"Total hip arthroplasty" OR "total hip replacement"
S3	THA
S4	S1 or S2 or S3
S5	(MH "Arthroplasty, replacement, knee+")
S6	Knee N2 (replacement or arthroplasty)
S7	S1 or S2 or S3 or S5 or S6
S8	(MH "qualitative studies+")
S9	(MH "interviews+") OR (MH "focus groups") OR (MH "narratives") OR (MH "observational methods+") OR (MH "self report+")
S10	(MH "nurse-patient relations")
S11	(MH "patient-family relations")
S12	Qualitative OR "grounded theory" OR (phenomenological or phenomenological)
S13	S8 or S9 or S10 or S11 or S12
S14	S7 and S13
S15	S7 limiters - publication type: Meta synthesis
S16	S14 or S15
S17	(MH "length of stay")
S18	S7 and S17
S19	MW psychosocial factors
S20	S18 and S19
S21	S20 not S16
S22	S14 or S15 or S20

**TABLE A3** PsycINFO

#	Searches
1	Hips/
2	Knee/
3	Or/1-2
4	Surgery/
5	Exp patients/
6	Or/4-5
7	3 and 6
8	Limit 7 to 1,600 qualitative study
9	Limit 7 to 1,300 metasynthesis
10	Or/8-9

Scopus ("total hip replacement" OR "total knee replacement") AND "qualitative study" AND "experience".

Mednar ("total hip replacement" OR "total knee replacement") AND "qualitative study" AND "experience".

GreyNet ("total hip replacement" OR "total knee replacement") AND "qualitative study" AND "experience".

## APPENDIX II: LIST OF EXCLUDED STUDIES AND REASONS FOR EXCLUSION

	Authors	Reasons for exclusion
1	Artz, N., et al.(2013). Physiotherapy provision following discharge after total hip and total knee replacement: a survey of current practice at high-volume NHS hospitals in England and Wales. <i>Musculoskeletal Care</i> , 11(1):31–38.	The paper reported a physiotherapy service survey that did not pertain to patients' experience
2	Barker, K. L, et al. (2006). Patient satisfaction with accelerated discharge following unilateral knee replacement. <i>International Journal of Therapeutic Rehabilitation</i> , 13(6): 247–253.	The procedure was unicompartmental and was not THA
3	Berthelsen, C. B., & Frederiksen, K. Orchestrating care through the fast-track perspective: A qualitative content analysis of the provision of individualized nursing care in orthopedic fast-track programmes. <i>International Journal of Orthopedic and Trauma Nursing</i> 2017; 24: 40–49.	The paper described nurses' perspective of care
4	Causey-Upton, R. & Howell, D. M. (2017). Patient experiences when preparing for discharge home after Total knee replacement. <i>International Journal of Allied Health Science Practice</i> , 15(1): 1–11.	The paper described patients' experience before discharge
5	Conradsen, S., et al. (2016). Patients' experiences from an education programme ahead of orthopedic surgery - a qualitative study. <i>Journal of Clinical Nursing</i> , 25 (19/20): 2798–2,806.	The paper described patients' presurgical experience
6	Cox, J., et al. (2016). Patient and provider experience with a new model of care for primary hip and knee arthroplasties. <i>International Journal of Orthopedic and Trauma Nursing</i> , 20: 13–27.	The paper focused on a new model of care and did not describe patients' experience
7	Fujita, K., et al. (2006). Qualitative study of osteoarthritis patients' experience before and after total hip arthroplasty in Japan. <i>Nursing and Health Science</i> , 8(2): 81–87.	The paper described the pre-THA to post-THA period, and the postsurgical period was beyond 6 weeks after the procedure
8	Gambling, T. S., & Long, A. F. (2013). Experiences of young women living with developmental dysplasia of the hip: Insight into their experiences of surgery and recovery. <i>Chronic Illness</i> , 9(1):16–28.	The procedure was not a joint replacement surgery
9	Gustafsson, B., et al. (2010). The hip and knee replacement operation: An extensive life event. <i>Scandinavian Journal of Caring Sciences</i> , 24(4): 663–670.	The paper described mostly patients' preoperative experience; it included no description of postoperative experience
10	Gustafsson, B.A., et al. (2007). The lived body and the perioperative period in replacement surgery: Older people's experiences. <i>Journal of Advanced Nursing</i> , 60 (1): 20–28.	The postsurgical period was beyond 6 weeks after the surgery
11	Hagglund M, Bolin P, Koch S. (2015). Experiences as input to eHealth design - a hip surgery patient journey case. <i>Studies of Health and Technology Informatics</i> , 210:672–4.	The paper proposed an eHealth design and included no description of patients' postsurgical experience
12	Hunt, G.R., et al. (2009). Early discharge following hip arthroplasty: Patients' acceptance masks doubts and concerns. <i>Health Expectations</i> , 12(2): 130–137.	The paper described patients' experience before discharge

(Continues)

	Authors	Reasons for exclusion
13	Jäppinen, A.M., et al. (2017). Postoperative patient education in physiotherapy after hip Arthroplasty: Patients' perspective. <i>Musculoskeletal Care</i> , 15(2): 150–157.	The topic was postoperative patient education
14	Joelsson, M, et al. (2010). Patients' experience of pain and pain relief following hip replacement surgery. <i>Journal of Clinical Nursing</i> , 19(19/20): 2832–2,838.	The study described pain during hospitalization
15	Jorgensen, L. B., & Fridlund, B. (2016). Restoring integrity—A grounded theory of coping with a fast track surgery programme. <i>International Journal of Qualitative Studies and Health Well-being</i> . 11:29864.	The paper described patients' experience before discharge
16	Kairy, D, et al. (2013). The patient's perspective of in-home telerehabilitation physiotherapy services following total knee arthroplasty. <i>International Journal of Environmental Research and Public Health</i> , 10(9):3998–4,011.	The paper only described experience with experimental telerehabilitation
17	Kennedy, D., et al. (2017). A qualitative study of patient education needs for hip and knee replacement. <i>BMC Musculoskeletal Disorders</i> , 18: 1–7.	The paper described information-seeking behaviors of patients undergoing hip and knee replacement; the paper did not clearly describe when the patients sought information
18	Klapwijk, L., et al. (2017). The first 6 weeks of recovery after primary total hip arthroplasty with fast track. <i>Acta Orthopaedica</i> , 88(2): 140–144.	The study had a quantitative design
19	Kleiner, C. (2004). Experiences of pain in elderly patients having total knee arthroplasty. Duquesne University (doctoral dissertation). 122 p-122 p.	The author focused on postoperative pain in patients with continuous chronic pain in the postoperative period
20	Loft, M., et al. (2003). Patient empowerment after total hip and knee replacement. <i>Orthopedic Nursing</i> , 22(1): 42–47.	The paper described the view of health care providers by participants who did not seem to have a short length of stay
21	Lucas, B., et al. (2013). Preoperative preparation of patients for total knee replacement: An action research study. <i>International Journal of Orthopedic and Trauma Nursing</i> , 17(2): 79–90.	The paper described the research process used to prepare patients for knee replacement and did not include a description of the patients' experience in the postsurgical period beyond 6 weeks
22	Lucas, B. (2008). Changing orthopedic practice using action research: Researching “with” and not “on” patients and staff. <i>J Orthopaed Nurs</i> , 12(3/4): 130–131.	The paper was a conference abstract from a report published in <i>J Geriatr Phys Ther</i> , 2018; 41(1): 35–41
23	Maxwell, J., et al. (2018). “fear of the known and unknown”: Factors affecting participation following knee replacement among persons with participation restriction. <i>Journal of Geriatric Physical Therapy</i> , 41 (1): 35–41.	The paper described patients' experience from 1 to 5 years postoperatively
24	McNaught, H., et al. (2016). Patient-reported importance of assistive devices in hip and knee replacement enhanced recovery after surgery (ERAS) pathways. <i>British Journal of Occupational Therapy</i> , 79 (10): 614–619.	The paper described a quantitative study
25	Nasr, N., et al. (2012). Redefinition of life experience following total hip replacement: a qualitative study. <i>Disability and Rehabilitation</i> 34(10):802–102.	The study focused on coping methods but not the patients' experience itself, and patients were interviewed 1 to 2 years postoperatively
26	Specht, K., et al. (2016). Patient experience in fast-track hip and knee arthroplasty - a qualitative study. <i>Journal of Clinical Nursing</i> , 25(5/6): 836–845.	The paper contained little description of patients' experience before 6 weeks postoperatively



	Authors	Reasons for exclusion
27	Stergiou-Kita, M., & Grigorovich A. (2012). Community reintegration following a Total joint replacement: A pilot study. <i>Musculoskel Care</i> , 10(1): 103–113.	The paper described patients' experience beyond 6 weeks postoperatively
28	Szöts, K., et al. (2015). Nurse-led telephone follow-up after total knee arthroplasty - content and the patients' views. <i>Journal of Clinical Nursing</i> , 24(19/20): 2890–2,899.	The paper described a clinical trial to test the efficacy of telephone follow-up by nurses
29	Webster, F., et al. (2013). Where is the patient in models of patient-centred care: a grounded theory study of total joint replacement patients. <i>BMC Health Service Research</i> , 13(1): 531–531.	The paper described patients' presurgical experience
30	Soever, L. J., et al. (2010). Educational needs of patients undergoing total joint arthroplasty. <i>Physiotherapy</i> , 62(3): 206–214.	Patients were interviewed preoperatively and postoperatively regarding their educational needs. Factors affecting educational needs were briefly described. Little description of patients' experience was included
31	Specht, K., et al. (2016). Patient experience in fast-track hip and knee arthroplasty - a qualitative study. <i>Journal of Clinical Nursing</i> , 25(5/6): 836–845.	The paper contained little description of patients' experience before 6 weeks postoperatively
32	Specht, K., et al. (2009). Patient experience in fast-track hip and knee arthroplasty - a qualitative study. <i>Journal of Clinical Nursing</i> , 25(5/6): 836–845.	The study focused on confidence for surgery and being ready for discharge. Patients' experience after discharge was not described
33	Steefel-fisher, T. (2009). Task-oriented pain management: a patient's perspective. <i>Creative Nursing</i> , 15(3): 145–147.	A patient described their own postoperative experience during hospitalization
34	Stergiou-Kita, M., & Grigorovich A. (2012). Community reintegration following a Total joint replacement: A pilot study. <i>Musculoskel Care</i> , 10(1): 103–113.	The paper described patients' experience beyond 6 weeks postoperatively
35	Szöts, K., et al. (2015). Nurse-led telephone follow-up after total knee arthroplasty - content and the patients' views. <i>Journal of Clinical Nursing</i> , 24(19/20): 2890–2,899.	The paper described a clinical trial to test the efficacy of telephone follow-up by nurses
36	Thomas, W.N., et al. (2010). The reasons for noncompliance with adaptive equipment in patients returning home after a total hip replacement. <i>Physical and Occupational Therapy in Geriatrics</i> , 28(2): 170–180.	Phone interviews were mostly summarized quantitatively with short narratives
37	Webster, F., et al. (2013). Where is the patient in models of patient-centred care: a grounded theory study of total joint replacement patients. <i>BMC Health Service Research</i> , 13(1): 531–531.	The paper described patients' presurgical experience
38	Jansson, M.M., et al. (2019). Healthcare professionals' perceived problems in fast-track hip and knee arthroplasty: Results of a qualitative interview study. <i>Journal of orthopedic surgery and research</i> , 29:567–582.	The study covers presurgical period, during hospitalization and postsurgical period, and illustrations of postsurgical experience were too short to understand the context

Abbreviations: THA, total hip arthroplasty.

### APPENDIX III: CRITICAL APPRAISAL RESULTS OF QUALITATIVE RESEARCH

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Engström & Karlsson, 2017	N	Y	Y	Y	Y	N	N	Y	Y	Y
Gautreau et al., 2017	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Grant et al., 2009	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Johnson et al., 2016	U	Y	Y	Y	Y	N	Y	Y	Y	Y
Kendall, 2015	Y	Y	Y	Y	Y	U	N	Y	Y	Y
McHugh & Luker, 2012	N	Y	Y	Y	Y	N	N	Y	Y	Y
Reay et al., 2015	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Webster et al., 2014	N	Y	Y	Y	Y	N	N	Y	Y	Y
Jacobson et al., 2008	U	Y	Y	Y	Y	N	N	Y	Y	Y
Marcinkowski et al., 2005	N	Y	Y	Y	Y	N	N	Y	Y	Y
Sjoveian & Leegaard, 2017	N	Y	Y	Y	Y	N	N	Y	Y	Y
Specht et al., 2018	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Perry et al., 2011	Y	Y	Y	Y	Y	U	Y	Y	Y	Y
Johnson et al., 2014	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Fielden et al., 2003	N	Y	Y	Y	Y	N	N	Y	Y	Y
Goldsmith et al., 2017	N	Y	Y	Y	Y	N	N	Y	Y	Y
%	40	100	100	100	100	17	25	100	100	100

The Joanna Briggs Institute Qualitative Assessment and Review Instrument.

Note: The quality of the paper was rated as “yes”, “no”, “unclear”, and “not applicable”.

Q1. Is there congruity between the stated philosophical perspective and the research methodology?

Q2. Is there congruity between the research methodology and the research question or objectives?

Q3. Is there congruity between the research methodology and the methods used to collect data?

Q4. Is there congruity between the research methodology and the representation and analysis of data?

Q5. Is there congruity between the research methodology and the interpretation of results?

Q6. Is there congruity between the stated philosophical perspective and the research methodology?

Q7. Is there congruity between the research methodology and the research question or objectives?

Q8. Is there congruity between the research methodology and the methods used to collect data?

Q9. Is there congruity between the research methodology and the representation and analysis of data?

Q10. Is there congruity between the research methodology and the interpretation of results?