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Original Article

A Qualitative Study of the Postoperative Pain Management Educational Needs of Total Joint Replacement Patients

Celeste A. Lemay, RN, MPH [*], Kenneth G. Saag, MD, MSc [†], Patricia D. Franklin, MD, MBA, MPH [‡]

[*] University of Massachusetts Medical School, Worcester, Massachusetts
[†] Department of Medicine, Center for Outcomes and Effectiveness Research and Education, Center for Education and Research on Therapeutics, Division of Clinical Immunology and Rheumatology, Department of Medicine, University of Alabama at Birmingham, Birmingham, Alabama
[‡] Musculoskeletal Center of Excellence, Department of Orthopedics and Physical Rehabilitation, University of Massachusetts Medical School, Worcester, Massachusetts

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ABSTRACT

Background: The majority of patients undergoing total joint replacement (TJR) experience surgical pain in the early postoperative period and managing pain can be challenging for orthopedic surgeons and their patients.
Aims: The objective of this study was to better understand the postoperative pain management education needs of elective total joint replacement patients.
Design: This study had a descriptive phenomenological, qualitative design using individual interviews.
Settings: Nine orthopedic surgeons offices in 8 states.
Participants/Subjects: Twenty-seven patients (mean age: 71 years; 74% female; 78% non-Hispanic white) completed the interview.
Methods: Patients were interviewed using open-ended questions, which included experiences with surgical pain after surgery and how it was managed, experiences with pain medicine, experience using non–medicine-related pain reduction methods, and suggestions for delivery of pain management information.
Results: Challenges identified for managing postoperative pain included loss of pain control and lack of information about prescribed opioids and nonopioid methods of managing pain. Facilitators included having a caregiver or family member in a health care field and previous experience managing postoperative pain. Participants believed that information about pain management would be helpful and should be delivered at multiple time points.
Conclusions: With trends toward shorter hospital stays, as well as the growing opioid epidemic and the associated concerns regarding prescribing opioids, home-based pain management should be a priority. Interventions should include education about narcotic use and abuse as well as nonmedication approaches to pain management.

The majority of patients undergoing total joint replacement (TJR) experience surgical pain in the early postoperative period (Apfelbaum, Chen, Mehta, & Gan, 2003). Managing surgical pain postoperatively can be challenging for orthopedic surgeons and their patients (Horlocker, 2010; Gan, Habib, Miller, White, & Apfelbaum, 2014). Postoperative pain that is poorly controlled may affect patients' recovery, including longer length of hospital stay, increased risk for adverse events, and delayed recovery. Additionally, managing postoperative pain has become more complicated with the prescription drug abuse epidemic (Centers for Disease Control and Prevention, 2011), as well as the recommended solutions that focus on narcotic prescribing habits (Centers for Disease Control and Prevention, 2011; American Medical Association, 2015). As a result, the use of narcotic medications—as the primary method to control outpatient postoperative pain—will most likely change. Finally, with decreasing

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Address correspondence to Celeste A. Lemay, RN, MPH, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655.
E-mail address: Celeste.lemay@umassmed.edu (C.A. Lemay).

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hospital length of stay and increasing discharges directly to home, it is important that patients understand how to self-manage postoperative pain. Therefore, understanding what would help patients effectively self-manage their postoperative pain after TJR is important to patients, surgeons, and hospitals.

Pain management during hospitalization has been the focus of many studies (Andersson, Otterstrom-Rydberg, & Karlsson, 2015; Fang et al., 2015; Haghighi et al., 2015; Joelsson, Olsson, & Jakobsson, 2010; Jove et al., 2015; Kovalak et al., 2015; Pulos & Sheth, 2014). Less attention has been paid to addressing patient self-management of pain after discharge. Additionally, a number of studies (Louw, Diener, Butler, & Puentedura, 2013; McDonald, Page, Beringer, Wasiak, & Sprowson, 2014) have examined the impact of preoperative patient education on patient outcomes after surgery; however, little is known about the patients' perception of the need for information to manage pain at home postoperatively, including content and timing of delivery (Kennedy et al., 2017).

Our previous work (Lemay, Lewis, Singh, & Franklin, 2017) found that, in a 2-week postoperative survey, 44% of elective TJR patients reported that they did not receive information regarding postoperative pain management before surgery. These patients also reported more pain at 2 weeks postoperatively and were less likely to use nonopioid pain care strategies. The lack of information was also associated with poorer 6-month postoperative patient reported outcomes, specifically joint specific function.

Using data from the FORCE-TJR study (Function and Outcomes Research for Comparative Effectiveness in Total Joint Replacement) (Franklin, Allison, & Ayers, 2012) and building on our previous study (Lemay et al., 2017), the purpose of the present study was to better understand the education needs of surgical patients. Specifically, our objectives were to explore the challenges and facilitators to managing pain after discharge, what pain management information would be most helpful, and how and when that information should be delivered. Additionally, we wanted to understand if patients had attended a preoperative education class, and if so, whether they remembered the content of that class.

Methods

Design and Sample

This study used a descriptive phenomenological, qualitative design. Phenomenology is employed to understand people's perceptions, perspectives, and understanding of the "lived experience" of the individual (Husserl, 1970). Phenomenology also incorporates the concept of bracketing, a theory that involves suspending judgment and instead focusing on analysis of experience (Porter, 1998). This approach necessitates data collection through individual interviews (Issel, 2013). As a result, we selected the individual semistructured interview as our data collection approach.

A semistructured interview allows for questions to be prepared ahead of time, while also allowing interviewees the freedom to express their views and experiences in their own words. Semistructured interviews can provide reliable, comparable qualitative data (DiCicco-Bloom & Crabtree, 2006).

The FORCE-TJR study, a national cohort of more than 132 orthopedic surgeons from 35 practices representing academic and private centers from 22 states across the country (Franklin et al., 2012), invited a subset of patients to complete an additional survey at 2 weeks postoperatively. This subset of patients at 20 practices completed a pain survey that included questions regarding whether or not they had received information before surgery about pain management options. We identified 526 people who, in a 2-week postoperative survey, reported that they had not received information about postoperative pain management options before TJR surgery (Lemay et al., 2017). With a goal of 25-30 participants, a random sample (n = 72) was identified and invited to participate in telephone interviews, using open-ended questions. The random sample was recruited from nine practices in eights states that had contributed at least 20 patients to the pain survey study. Recruitment occurred between December 2015 and April 2016. An additional criterion for inclusion in the sample included the ability to speak English. Seventy-two patients received a letter of invitation and one follow-up phone call. Ten patients (14%) opted out (n = 6) or refused (n = 4); 1 (1.4%) was ineligible because of confusion during the consent process; 32 (44.4%) did not reply to the letter and were not reached by the one phone call; 29 (40%) agreed to participate, and of those, 27 (37.5%) completed the interview. We determined that we had reached data saturation after we had completed 27 interviews and did not continue to follow-up with those that were not reached.

A registered nurse with more than 30 years of experience interviewing individuals in both clinical and research environments conducted the semistructured telephone interviews. Before the interview, she reviewed the consent form with the participant and obtained verbal consent. Interviews lasted approximately 45-60 minutes and were digitally recorded and transcribed. Participants received a $25 appreciation gift card.

The University of Massachusetts Medical School Institutional Review Board for the Protection of Human Subjects in Research approved the study protocols and consent procedures.

Measures

A literature search failed to identify any suitable validated interview guide we could use, or revise, to collect information. Instead, the semistructured interview script was informed by our previous study's findings (Lemay et al., 2017) and in consultation with members of the research team. The interview script included open-ended questions, prompts, probes, and follow-up questions to allow for more information to be collected concerning patients' experiences. Additionally, patients were asked if there was information regarding their experience that had not been explored and participants were encouraged to share that information with the interviewer (Fig. 1). Questions included recollection of preoperative class attended and content, experiences with surgical pain after surgery and how it was managed, experiences with pain medicine, experience using non–medicine-related pain reduction methods, and suggestions for delivery of pain management information.

Analytical Strategy

Content analysis techniques were used to categorize data. This research approach uses coding procedures to identify themes (LoBiondo-Wood and Haber, 2009). A coding scheme was developed after multiple readings of the participants' responses as well as using the original interview questions and respondents' spontaneously offered comments. Verbatim responses were coded. Emergent themes were identified, and exemplar quotes were selected. Descriptive statistics were used to characterize the study sample.

Results

Twenty-seven participants completed a telephone interview. The mean age of participants was 71 years; the majority were female (74%) and non-Hispanic white (78%). Approximately half (52%) had undergone a total knee replacement (Table 1). The themes identified during content analyses, with additional exemplar quotes, are included in Table 2.

1. Did you attend an education class prior to your joint replacement surgery?
   If No, skip to Question 2
   If Yes, What do you remember about the class? What information were you given? Who taught the class and where? What did you like about it? What could have been better? What did you find the most helpful? Is there anything else you wanted to add about this class?
2. Most people have surgical joint pain in the first weeks after surgery. Can you tell me about your experiences with surgical joint pain after surgery? What problems did you have managing your pain? What worked best for you in managing your pain?
3. What did you use to manage your surgical joint pain? Where did you get information to help you in managing your pain? What was the most challenging thing about managing your pain? Did anyone provide help in managing your pain. If so, how did they help?
4. Thinking about your experience managing your surgical joint pain after surgery, what information do you think would have been helpful to know? For example, what do you know now about managing pain that you wished you had known then?
5. Who should deliver this information about pain management? Again, thinking about your experience, when should it be delivered? How should it be delivered?
6. What suggestions do you have for others electing joint replacement surgery pertaining to managing pain after surgery?
7. Is there anything else you'd like to say about what we've been talking about?

Figure 1. Individual Semistructured interview guide questions.

Preoperative Class Content

Although all participants remembered attending a preoperative class before their joint replacement surgery, none remembered receiving any information during that class about how to manage their surgical pain once they were discharged home:

> I know that they talked about managing to get around and managing to ambulate and whether you would be able to go up and down stairs and things like that, but I don't remember them talking a lot about in-depth medication protocols.

Table 1
Selected Characteristics of Study Participants (N = 27)

Variables	N (%)	M	SD	Range
Age at interview (y)	70.63 (8.32)	70.63	8.32	56-86
Gender				
Female	20 (74.1%)			
Race				
White	21 (77.8%)			
American African	1 (3.7%)			
Other	1 (3.7%)			
Missing	4 (14.8%)			
Ethnicity				
Hispanic	1 (3.7%)			
Non-Hispanic	16 (59.3%)			
Missing	10 (37%)			
Health Insurance				
Private	7 (25.9%)			
Public	17 (63.0%)			
Missing	3 (11.1)			
Education				
High school or less	5 (18.5%)			
Post–high School or more	19 (70.4%)			
Missing	3 (11.1%)			

M = mean; SD = standard deviation.

Most patients remembered detailed discussions regarding the inpatient hospital experience.

> [They explained] what to expect in the hospital in regards to having the surgery, what happens after surgery, coming to your room, the expected physical therapy, the types of instruments you need to be prepared for…having a walker or being able to buy a walker. They talked about the length of the stay. When to get up, what to do if you need to get up. And talked about the pain management in regards to the level of pain you could experience and having a pump available and just making sure and using that pump before the pain gets too severe and just to keep your pain under control. I feel like they prepare you and tell you how to manage that pain when you're having that surgery, but for me it's just everything after, so I think while I was in the hospital I think they did good. I followed everything they did, came home that first week, second week okay, but it was after that that it kind of went downhill and things were different.

Managing Pain Postoperatively

When participants were asked about their experiences managing their surgical pain after discharge home, several challenges were identified, including loss of pain control and lack of information about prescribed opioids as well as nonopioid methods of managing pain.

Challenges

Loss of pain control. Several patients discussed their experiences with a loss of pain control. The following highlights the struggles of one participant, and her attempt to relieve pain by self-medicating:

> I think that that level of pain that I was having, I just couldn't… my mind just couldn't even focus. I couldn't even hardly sleep…I

Table 2
Themes Identified with Additional Exemplar Quotes

Themes	Selected Comments
Preoperative class *Content covered*	"From start from checking in to how long the procedure would take perhaps, what types of … the different [surgical] approach from different surgeons. And what to expect and … what services were going to be available to you after you got home, after-care."
	"It was pretty much hospital. Pretty much hospital and what you need to do … what your experience is going to be in the hospital, hopefully. And that was pretty much it."
	"They was showing you what they were going to do and showed what kind of knee you was going to get and all that. They told me like I would be going in to surgery and what was going to happen when I go … like I was going under the anesthesia and all … and I think that's about all."
Challenges	"It [physical therapy] was so painful I cried so much and I asked him not to be so rough, but he said that that's what
Loss of pain control	they had to do in order to help the knee be mobile and move as it should."
	"And, boy, before they got the pain under control I felt I could understand perfectly why anybody under torture would tell absolutely anything and everything."
Challenges	"It [OxyContin] made me loopy. I just said, no, I'm not going to take it."
Lack of information about prescribed narcotics	"Well I took some oxycodone that … I don't know, that does a number with my head. I would talk out of my mind and everything. And I don't like to get hooked on that stuff."
	"It just said on the bottle every four to six hours as needed and that's pretty much all."
	"Well it [the instruction] was on the bottle of oxycodone."
	"I don't know if [receiving information about narcotics] would've changed my outlook on it, but it might've opened a window that I wasn't willing to look into."
Challenges	"Then I came home [post-TJR] the guy [physical therapist] said I could ice it. And I tried a little bit of that. And then of
Lack of information about non-narcotic methods of managing pain	course when I went to physical therapy they iced it and heated it and whatever else was involved."
Facilitators	"I'm pretty sure my wife told me [to take a pain pill before I started physical therapy], my wife's an RN, my oldest
Caregivers in a health care field	daughter's an RN, and my youngest daughter's an LPN."
	"My wife's a nurse, so she's kind of keeping one eye on me. So she would…keep track of the meds and all that."
Facilitators	"I had an ice machine that I had left over from my daughter's surgery that she had on her knee. So rather than just
Previous experience managing postoperative pain	using ice packs, I used that machine a lot."
	"Yeah, that was great. I kept elevating. I had a recliner chair and I would elevate my knee up on a pillow and then put the machine on and wrap my knee and it would … the water, cold water, would circulate inside of there and that was very, very helpful [for managing pain]."
	"I used heat. Ice didn't help me. Of course immediately after surgery they had the ice that I had to keep on them both [current surgery and previous surgery]. But as soon as I could get rid of that [ice] I didn't notice any help from that. Heat worked much better."
Delivery of information-*Timing*	"Oh, no, multiple times, yeah. It's a lot to take in."
	"Well, yeah, because the first time [you receive information] is just … you get just a certain amount, but if you hear it again, you know."
	"The more you hear it the more it makes sense."
	"Well I think the person giving that pre-surgery information, that class, I think that would be a good time to do it. Well I think then it can be backed up by the nurse who's actually on the floor with you."
	"Well probably right after the surgery, but see, I wasn't alert at that time."
	"Okay, then you have to have that talk in the hospital. I mean it is either that session before, but then in the hospital, when you're in the hospital, that somebody at that point in time has to sit down with you and also give it to you in writing because you don't remember half of what you hear at that point. I mean you really don't. And the family needs to know."
Delivery of information	"I think in print form would be good. If it's discussed orally in the presentation, whatever else, unless the person's
Media	sitting there taking notes, because there's a lot of information. And if they don't give it to you in printed form, it's gone, being realistic, because you don't experience this but once, twice maybe in your life, whatever. And you just don't … it's not what you do every day or what you deal with."
	"Well I think a CD, most people have some kind of playing device, but not everybody. So it probably should be verbal and written."
	"I like the video idea, I think that would help. And if that was something that everybody has a website now…"
	"You do the verbal, give them the paperwork and say, "I want you to read this." That way, you've got all bases covered."

> hate to say, but I drank so much wine. I told the doctor I never drink that much, and my God, I just wanted to sleep because it was so painful. I just wanted to block it out.

Lack of information about prescribed opioids. Although all participants reported that they had been prescribed a narcotic for pain management postoperatively, none reported receiving any information regarding use of the medication other than the information provided on the pill bottle:

> Nobody told me anything about them [narcotics], except that they were a listed pain-killer…you just take as needed. That was it; that was the total instruction. And didn't say be careful or anything.

Others were not aware how to best self-administer the prescribed medication:

> I think the most challenging thing is how much pain medication should I take?

Many participants had concerns regarding the use of prescribed opioids to control their pain and the risk of addiction and, as a result, did not use the prescribed medication:

> If in fact, it was as good as everybody claimed it was, I didn't want to become an addict and hooked on it.

A few discussed side effects they experienced but did not immediately connect with the use of prescribed opioids because they had not received information about the potential for adverse events:

> I took maybe a day of it and then figured that that was…well figuring out that that's what was causing the impaction, so I stopped taking it.

Lack of information about nonopioid methods of managing pain. Although many participants reported using ice after surgery to help manage pain and discomfort, a few participants were unaware that ice could be used:

> Some friend of my husband's said, "Oh, aren't you putting ice on it?" So I did. And it was a good month after I had the surgery that I did the icing.

Other methods of managing pain mentioned by participants included using acetaminophen or nonsteroidal antiinflammatory drugs, resting the joint or exercising, and elevating the affected leg. Only one participant mentioned using meditation for managing her pain postoperatively.

Facilitators

A few facilitators for managing postoperative surgical pain were also identified. These included having a caregiver or family member in a health care field and having previous experience managing postoperative pain.

Caregivers in a health care field. Some participants mentioned that having a caregiver in a healthcare field was helpful in obtaining information about managing their pain postoperatively:

> I have to say that what had helped me more than anything with pain is doing the exercises that my husband…my husband's a physical therapist…and so if I do the exercises that he had prescribed to keep my muscles strong in the hip area.

Previous experience managing postoperative pain. Another facilitator to managing postoperative pain was having some prior experience managing pain after surgery, either their own surgery or a family member's surgery:

> I just kind of knew [how to take prescribed opioids]. Having been on it before, having taken it for a surgery in the past, I'm pretty savvy about how to take it and what to do and so I don't think anybody really had any major discussions with me about it. Just the normal, here's your prescription, take it every four hours for the pain.

Delivery of Pain Management Information

Participants believed that information about pain management, particularly instructions for taking prescribed opioids and nonmedicine approaches, would be helpful and should be delivered at multiple time points, including preoperatively, at discharge, and within the first few days after discharge:

> Well I think in the pre-surgery thing [preoperative class], and then I think when you go to physical therapy, while you're in the hospital still, the first couple of days after surgery, have them explain again what the pain's going to be like and what you can do to manage it a little better.

Several participants also mentioned the need to receive repeated information to better comprehend the information being delivered:

> For me I should hear it more than once because, hey, I'm…well I'm 74 years old when I had this done. Okay? And I can't remember things very good.

Others mentioned the challenges of receiving information at only one specific time point:

> There is a lot of information to absorb [preoperatively] in preparing for this. I don't know, maybe I did get some information [about managing pain postoperatively], just it didn't stick. You're a little anxious.

and

> Once you've had the surgery you're not going to be in the mindset to do any thinking about it [receiving information about managing pain]. You're just going to reach for whatever's going to get rid of the pain. You're not going to be normal. It's like being sick. How well do you think when you're sick?

Participants offered multiple suggestions regarding what media should be used to deliver information, including via print, verbally, or electronically (CDs, videos, or websites). However, participants also emphasized that the importance of considering patients' individual needs when educating about postoperative pain:

> However you give it to the patient it should meet that patient's needs. So if they're okay verbally or if they need it in writing or if they wanted it another way, whatever way worked for them, they should receive it that way.

When asked about alternative approaches to managing pain, such as meditation, deep breathing, distraction, and so on, many participants expressed an interest in learning more and believed it could have been helpful in managing their postoperative pain:

> Yeah, that would be an interesting way of going, rather than medication.

A few participants also expressed doubts that alternative approaches would have helped:

> Well for as bad as that pain was, I doubt that those would've helped. I mean, I had a lot of people praying for me, let me tell you. And I do believe in the power of prayer. There's no question about that. But this is pain that's beyond…this is a little bit past that. The pain is severe enough that it's past that level.

Others mentioned the need to have these skills before surgery, rather than trying to learn them afterward.

Discussion

All participants in this study did report attending a preoperative class before their elective joint replacement surgery, which is

expected because a preoperative education class is the standard of care for elective TJR. However, participants could not remember receiving post-TJR pain education information during the preoperative class. This finding is supported by a recent literature review that found attending a preoperative education class did not have any effect on postoperative pain management for patients undergoing elective total knee replacement (Barry, 2017). Participants did recall information about what to expect during hospitalization. With their high participation rate, these preoperative classes appear to be an opportunity to provide much needed education about home pain management. However, it is also important that the content of the information meet the individual needs of the patient. Through participant interviews, we identified several challenges and facilitators to managing patients' postoperative pain and suggestions for the appropriate delivery and timing, which we relate later, as well as possible implications to facilitating and improving patients' pain management education.

Among these challenges, all participants reported being prescribed opioids to manage their pain but receiving very little information about how to take them or about their potential side effects. This finding is similar to a 2009 qualitative study by Kastansia et al. reporting that patients interviewed 72 hours after day surgery identified the need for an analgesic plan after discharge from the hospital and an increased understanding of side effects as highly important (Kastanias, Denny, Robinson, Sabo, & Snaith, 2009). A more recent (2017) qualitative study conducted at one large orthopedic center in Canada also identified pain medication education, particularly after discharge from the hospital, as the greatest need (Kennedy et al., 2017). Additionally, recent studies have indicated that approximately 23%-32% of patients are taking prescribed opioids before surgery (Bedard et al., 2017; Franklin, Karbassi, Li, Yang, & Ayers, 2010; Goesling et al, 2016; Smith et al., 2017). In light of the current opioid epidemic, it is essential that education regarding how to self-administer and taper prescribed opioids over time, possible side effects, and an understanding of the risk of addiction be included in arthritis management before surgery as well as in preparation for the postoperative management at home.

Participants identified two facilitators for managing their postoperative pain: previous experience managing surgical pain and having a caregiver in a health care field. These findings indicate that educational needs for managing pain may have been addressed through either lived experience or with the assistance of social networks that included health care professionals. It is not clear from our findings whether the knowledge gained was always accurate or current. Understanding patients' previous experience with managing postoperative pain as well as resources available to them via caregivers could help in the development of interventions for targeted and individualized approaches to education. For those patients with no prior experience, additional information can be provided through multimedia methods that allow the patient and caregivers to review information as needed. With the vast majority of TJR patients returning home within days of the surgery, it is possible that in-home clinicians (e.g., visiting nurse or physical therapist) can reinforce best practices for pain management while supporting wound care and progressive mobility.

Despite experiencing arthritis pain for several years before their elective joint replacement surgery, participants had little knowledge of nonmedication methods of managing their acute surgical pain. Many participants expressed an interest in learning about these methods. Our finding is similar to that of a qualitative study exploring the barriers and facilitators to self-management of chronic musculoskeletal pain that identified lack of information from their primary care provider about self-management strategies other than medication as a major barrier (Bair et al., 2009). Although information in the literature about the effectiveness of other treatments for managing post-TJR pain once a patient is discharged home is scarce, research is being conducted regarding benefits of alternative treatments for chronic pain (Cherkin et al, 2016; Cunningham & Kashikar-Zuck, 2013; Turner et al., 2016), including mindfulness-based stress reduction and cognitive behavioral therapy, which could inform postoperative pain management as well as preoperative arthritis pain management.

Participants discussed the need to receive pain management education at multiple time points to hear the message and implement it. A recent focus group study (Lambourne, et al., 2018) of oncology patients reported similar findings regarding the need to reiterate information over the course of treatment. Participants also expressed the belief that the message should be tailored to meet patients' educational needs, which they felt included what media was used to deliver the information. Similar to findings by Andersson et al. (2015), the most common delivery media mentioned were verbal and written format. In the present study almost all participants were open to also receiving information through electronic media, whether CD, videos, or the surgeon's website. This suggests that patients electing total joint replacement surgery would be open to a targeted, multipronged, multimedia approach to education about at home pain management strategies. These findings are similar to those reported by Kennedy et al. (2017). Additionally, a Cochrane review of multimedia educational interventions for patients related to prescribed and over-the-counter medications (Ciciriello, et al., 2013) reported moderate-quality evidence of increased knowledge when multimedia education was added to written or verbal instructions. Although participants included web-based sources as a potential resource, a recent study (Schairer, Kahlenberg, Sculco, & Nwachukwu, 2017) found a lack of online postoperative TJR pain management information for patients, including poor-quality information written at a higher than average reading level with little information addressing prescribed opioids. Future interventions should take this into consideration when developing strategies to educate patients.

This study has some limitations. Although our sample size was small as a consequence of using interviews to collect data, we were able to obtain in-depth answers to open-ended questions, increasing our understanding of the lived experiences of participants. In addition, this sample size was adequate to identify consistent themes to guide future pain management redesign. We invited patients to participate who reported not receiving information about managing their postoperative pain before their elective TJR. Although in our previous study we did not find any significant differences in demographic characteristics, medical and musculoskeletal comorbidity, or preoperative pain and function between those who received information and those who did not (Lemay et al., 2017), our interviews may have some selection bias because participants may have expressed beliefs and attitudes regarding pain management that differ from other TJR patients. However, we interviewed more than one-third of the invited patients and all reported pain management challenges. If one-third of patients are not adequately prepared to manage post-TJR pain, then this information is important to refine pain education. We also did not have access to the content of the preoperative education class at the nine different participant recruitment sites participants. As a result, we are not able to confirm what, if any, information regarding pain management after discharge was provided to participants. If patients are not able to recall information when needed, this is an important issue that should be addressed. Finally, most of our participants had more than a high school education. This may bias our conclusions about educational experiences and needs. Regardless of patient educational level, it would be important to follow the universal health literacy precautions (Agency for Healthcare Research and Quality, 2015) in developing potential

interventions to address the educational needs of patients regarding managing their postoperative pain after discharge.

Conclusions

Results of this study highlight patient-identified needs regarding pain management education after elective total joint replacement surgery. With trends toward shorter hospital stays, and even same-day discharge to home, as well as the growing opioid epidemic and the associated concerns regarding prescribing opioids, refined pain management education programs that provide patients with information on how to self-manage once they are discharged should be a priority. Interventions should include education about narcotic use and abuse as well as nonmedication approaches to pain management and be available for review and reinforcement after discharge. The insights from this study could also inform pain management before surgery as well as information for other patients undergoing elective surgery.

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