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Original Research Article

A Qualitative Descriptive Study of Patient Experiences of Pain Before and After Spine Surgery

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Abstract

Objective. The purpose of this study was to describe the preoperative and postoperative experiences of spine surgery from the patient's perspective to help inform behavioral health services provided before, during, and after hospitalization. **Setting.** Single urban academic tertiary care hospital. **Methods.** Semistructured interviews with 14 adults who underwent spine surgery. Interview transcriptions were analyzed using content analysis by three investigators to identify emergent themes. **Results.** Three broad domains with associated themes emerged from the analysis: 1) preoperative experience—preparation, worries, and expectations; 2) recovery process—activity and pain management strategies; and 3) postoperative support in recovery—family and social support. **Conclusions.** The results of this qualitative descriptive study can be used to guide future perioperative behavioral health services for patients undergoing spinal surgery. Establishing realistic expectations of spine surgery and a comprehensive pain management plan are essential for adequate preoperative preparation. Furthermore, family involvement in the preoperative preparation for surgery is important for support of the patient during the recovery process.

Key Words: Spine Surgery; Patient-Centered Care; Pain Management; Qualitative Research; Perioperative

Introduction

Pain is influenced by a variety of social, cultural, and environmental factors. Preoperative emotional distress (e.g., anxiety, depression, and catastrophizing) has been shown to have small to medium effects on outcomes of surgery, including analgesic use, functional impairment, and post-surgical pain [1]. The effect of psychological factors is greater in musculoskeletal surgeries compared with other surgery types [2]. There are often discrepancies in spine surgery patients' preoperative expectations of surgical outcomes compared with their recovery [3]. Fortunately, interventions targeting presurgical expectations have been effective at reducing acute procedural pain [4] .

Adults undergo surgery of the spine for a variety of indications, including lumbar disc herniation, spinal stenosis, degenerative spondylolisthesis, and other deformities or conditions causing spinal cord or nerve compression [5,6] in an attempt to reduce pain and improve functional disability and overall health. Spine surgery can produce severe pain due to richly innervated periarticular tissues at the same spinal cord segments and adjacent segments [7]. Outcome studies for spine surgery commonly rely on health-related quality-of-life patient questionnaires, with the caveat that their numerical scores do not directly inform interventions [8–10]. Qualitative research can uncover a wide array of factors to explain patient expectations and what matters most to them to help inform care providers [11]. Understanding a patient's preoperative expectations—for pain relief, daily activities, sleep comfort, return to work, ability to exercise, and preventing future disability—can help care providers establish more realistic expectations, which may improve patient satisfaction and functional outcomes [12]. Current research indicates that behavioral health services, such as cognitive behavioral therapies (e.g., "From Catastrophizing to Recovery," pain education, relaxation, hypnosis) and "third wave" therapies (e.g., Acceptance and Commitment Therapy, Mindfulness-Based Stress Reduction), are acceptable and effective forms of pain treatment and that it is important to consider integrating them into models of care [2, 13].

The purpose of this study is to describe the preoperative and postoperative experiences of spine surgery from the patient's perspective to help inform behavioral health services in the perioperative setting.

Methods

Setting

Harborview Medical Center (HMC) is a 413-bed tertiary care hospital and trauma center located in the center of Seattle. It is managed by the University of Washington and performs on average 1,500 spine surgeries annually. The University of Washington Institutional Review Board approved the study.

Interview Participants

Adult patients who had undergone spine surgery at HMC were identified from a list of patients who are part of an ongoing postoperative pain registry. The registry is an international collaborative endorsed by the International Association for the Study of Pain and designed for quality improvement and research purposes for surgical patients (ClinicalTrials.gov Identifier: NCT02083835) [14]. Study staff contacted registry patients who had surgery in the year 2015 by telephone and invited them to participate. Consecutive patients (N = 41) were contacted until we reached data saturation. Twenty-seven patients declined to return the call or were unable to be reached due to incorrect or disconnected phone numbers. Those interested in participating (N = 14) completed verbal consent forms and were scheduled for a telephone interview that was conducted between two months and 12 months after their spine surgery. Three trained study staff (which included author MAR and two research assistants—RA [MA], psychology resident, and SB, sports physical therapist student) screened and interviewed patients. The interviewers had no other contact or relationship with the participants, and participants were not compensated for participation. Study staff asked the patients open-ended questions (Table 1) to probe six domains: perioperative expectations, emotional experiences, long-term recovery, postoperative outcomes, interest in perioperative psychosocial interventions, and potential barriers and facilitators to participating in an intervention. The interview questions were developed by expert consensus in tandem with an adolescent surgery study developed by a group of pain psychologists and anesthesiologists drawing on existing research about psychosocial risk factors [15]. Interviews were audio-recorded, lasting between 30 and 60 minutes, and were completed between October 2015 and March 2016.

Data Analysis

Study staff (Center for Clinical and Translational Research, Seattle Children's Hospital) professionally transcribed the audio-recorded interview content. One study staff member (ARM) imported the transcribed interviews into Dedoose software (https://www.dedoose.com/), a data management program, for content analysis [16, 17]. Coding was used to delineate substantive themes discussed by participants. For the purposes of this study, the investigators defined a theme as text that represents an important concept about participants' experiences in relation to the research questions and represents a pattern of responses across participants [18, 19].

Transcripts underwent peer review to ensure coding integrity, and there were frequent discussions of coding processes among study staff. Interviews were analyzed in batches to determine data saturation. In the initial analysis, three investigators (authors MAR, ARM, and DG) read three transcripts randomly selected from participants in order to identify a set of general themes and began constructing the master codebook in Dedoose. In this phase of the coding, the investigators coded for ideas and concepts that were communicated through passages or whole responses. In vivo coding was used when participants' exact words were unique or captured an idea particularly well. The investigators met to compare coding and negotiate differences in emerging themes to ensure that they achieved similar themes [20]. The investigators used these themes to develop a formal codebook that a single investigator (ARM) could use to code the remaining interviews.

The investigators used an iterative process of reading and rereading interviews to develop a master codebook of emergent themes. Although analyzing new interviews and identifying new themes, the investigators redefined current codes to include the new information or added a new code if the theme was determined to be a distinct concept. The investigators then revised the master codebook accordingly. After completing the initial coding, the investigators reread the interviews to ensure accuracy of the codebook and make any necessary modifications, such as merging related codes containing similar themes or splitting codes that contained more than a distinct thought or concept. After completing all interviews and coding, larger themes emerged, which were compiled using parent codes, or groups of codes related to the same

Table 1. Semistructured interview guide

Questions	Probes
1. Think back to before your surgery. What did you like/dislike about the presurgical process?	
2. We want to know more about thoughts, behaviors, and feelings that were challenging or difficult for you BEFORE your surgery.	Cognitive: Did any thoughts or worries bother you? (e.g., catastrophizing, rumination, negative bias) If negative thought(s): How often did you have those negative thoughts? How bothersome were the thoughts? (0–10, where 0 is the least bothersome and 10 is the most) Cognitive/behavioral: Did you use any strategies to help yourself feel better, less anxious, or less negative? (e.g., positive/neutral coping statements, social support, spiritual/religious practices, practicing relaxation) Affective: What emotions were the hardest or most uncomfortable to deal with? (e.g., fear, anger, self-consciousness, sadness, anxiety) Affective: How long did you think it would take to feel more like your usual self, emotionally, after the surgery? (e.g., experiencing joy, interest in other people and activities, curiosity, activities)
3. Did the hospital, doctors, or staff do anything to help you prepare or cope before surgery?	
4. In what ways did the hospital, doctors, or staff do a good job before surgery to help you deal with pain and anxiety AFTER surgery?	What did you like/dislike about the current preoperative preparation?
5. Was there anything you were NOT prepared for?	Did anything surprise you or go wrong?
6. How long did it take for you to feel completely recovered (if at all)?	
7. What outcomes related to surgery are most important to you that you think should be measured?	For example, outcomes such as pain, mood, sleep return to activity, school, work, medication?
8. What did you or your family need during [this period] to help reduce long-term problems with pain or recovery more generally?	
9. Have you used any strategies to manage the pain you experienced after surgery?	What have you or others done to make the pain better or go away? (e.g., stretching, massage, ice/hot pack, prayer, music, taking deep breaths, visiting friends)
10. We want to know more about thoughts, behaviors, and feelings that were challenging or difficult for you AFTER your surgery.	Cognitive: Did any thoughts or worries bother you after surgery? (e.g., catastrophizing, rumination, negative bias) If negative thoughts: How often did you have those negative thoughts? How bothersome were the thoughts? (0–10, where 0 is the least bothersome and 10 is the most) Cognitive/behavioral: Did you use any strategies to help yourself feel better, less anxious, or less negative? (e.g., positive/neutral coping statements, social support, spiritual/religious practices, practicing relaxation) Behavioral: What was it like getting back to your normal activities after surgery? (e.g., lack of motivation to complete physical therapy, work-related activities) What was the easiest/best part about returning to your normal life after surgery? What was the hardest/worst part about returning to your normal life after surgery? Affective: What emotions were the hardest or most uncomfortable to deal with? (e.g., fear, anger, self-consciousness, sadness, anxiety) Affective: Are you back to feeling like your usual self emotionally? (e.g., experiencing joy, interest in other people and activities, curiosity)
11. We are considering developing a program (e.g., class, event) that patients would attend before surgery to help prepare them to manage and cope with pain and anxiety related to surgery (before and after). What are your thoughts about a program like this?	Do you think patients would benefit from receiving education and learning coping skills before surgery? Why or why not? How or why would they benefit?
12. What would such a program, preparing patients to manage and cope with pain and anxiety related to surgery, look like?	Content, preferred delivery method (in person or web/mobile-based, brochure/booklet), the optimal timing of intervention delivery, and the time commitment that would be feasible from their perspective, group vs individual (other presurgical vs postsurgical patients available to talk)
13. As an example, if we developed a two-hour in-person psychosocial intervention for patients and their families, aimed at reducing anxiety and developing effective strategies to cope with pain after surgery, would this have been helpful for you?	Why or why not? Do you think it would be helpful for others? Why or why not? How or why would they benefit?
14. As a second example, if we developed an online psychosocial intervention, supplemented by an online coach, similar to what we have developed for patients with chronic pain and their families, aimed at reducing anxiety and managing pain after surgery, do you think this would be useful?	Why or why not? (e.g., lack of time, lack of interest?)

(continued)

Table 1 continued

Questions	Probes
15. Would you have been interested in a brief screening that would have allowed you to take part in a program preparing patients to deal with pain and anxiety after surgery?	Why or why not? (e.g., lack of time, lack of interest, stigma, logistical or physical barriers to attending an in-person intervention, lack of resources for utilizing online intervention, prioritizing work-related activities) What barriers might prevent a patient or family member from participating in a program to help deal with pain and anxiety? (e.g., lack of time, lack of interest, stigma, logistical or physical barriers to attending an in-person intervention, lack of resources for utilizing online intervention, prioritizing work-related activities)
16. Do you think you would have benefited from getting to know other patients going through a similar procedure or already having been through a similar procedure?	Would you be comfortable talking to other patients about things that are challenging for you?
17. Would you have been willing to seek help (e.g., counseling, medication) if you were struggling before or after surgery?	
18. Do you have any other thoughts/ideas you would like to share?	

general thoughts or concepts. The results were checked by two patients to determine if our interpretation of the results resonated with the patients' experience.

Validity and Rigor

Several strategies were used to improve the validity and rigor of this study [20]. Substantial time was spent collecting data and in analysis, during which time the authors read and reread transcripts and listened to audio-recordings multiple times for each interview. This long time frame allowed for several brief periods away from the data, with the opportunity to return with a fresh approach to discover nuances or subtleties that had not been detected previously.

The authors met regularly for methodological and analytic decisions throughout the study. In addition, findings and reports were discussed with and read by experienced pain researchers for peer review.

Results

Fourteen patients participated in the study (Table 2). On average, participants were in their late 50s, male, and married, with an average length of stay of nearly eight days (including time spent in the intensive and acute care units). Surgical teams were primarily orthopedic, with some neurosurgery. Level of spine surgery included cervical, thoracic, and lumbar, with an average length of four intervertebral disc spaces. Several themes were identified within the following categories: 1) preoperative experience—a) preparation, b) worries, and c) expectations; 2) recovery process—a) activity and b) pain management strategies; and 3) postoperative supports in recovery—family and social support.

Preoperative Experience

Preparation

Patients gained information about what to expect during and after surgery from their health care team, previous surgical experiences, other patients who have had similar experiences, and their own independent investigation. A preoperative appointment with the surgeon allowed for an opportunity to have conversations about realistic expectations after surgery. However, some patients explained that they felt unprepared for surgery. When asked if the hospital, doctors, or staff did anything to help them prepare or cope before the surgery, a participant said:

> No, I don't think so. I think I actually was given some misleading information.... They didn't really speak to aftercare. –Participant 2

Others communicated that it was not possible to fully prepare for an experience that they had not had yet. Participant 4 said that true understanding of what is to come happens only when one gets first-hand experience: "I don't think anyone could have prepared me for the physical pain and weird feeling I had afterwards."

Preoperative appointments were often attended alone, with the patient relaying information to their social supports—frequently their family. One participant described how including the family in the preoperative discussions can give the patient the support they need to have a more frank and honest discussion with their surgeon.

> I think if my mom was there, I would have asked the scarier questions I was thinking about in my head. –Participant 4

Worries

Given the serious adverse effects that can result from spinal surgeries, it is reasonable for patients to feel anxious about potential outcomes. Patients interviewed in this study worried about physical outcomes such as pain, paralysis, or death. They also worried about the impact of the procedure on the lives of their loved ones and if they could accurately predict their recovery process based on the discussion with the surgeon during their preoperative appointment. Most of the patients described some type of unexpected outcome, the most common being nerve pain or numbness.

Table 2. Participant demographics (N = 14)

Variable	M ± SD or No. (%)	Median	Interquartile Range
Age, y	57.29 ± 15.69	59.5	19.5
Gender			
Male	8 (57.14)		
Female	6 (42.86)		
Marital status*			
Married	10 (71.43)		
Single	2 (14.29)		
Divorced	2 (14.29)		
Primary team			
Orthopedics	10 (71.43)		
Neurosurgery	4 (28.57)		
Spine level of surgery*			
Cervical	5 (35.71)		
Thoracic	4 (28.57)		
Lumbar	5 (35.715)		
Sacral	0 (0.00)		
No. of intervertebral disc spaces operated on	4.36 ± 2.50	3	3.25
Length of stay, d	7.93 ± 6.26	5.5	10.5

*Does not equal 100% due to rounding.

> I was a hot mess when I got home…. I couldn't use my arms right because of the nerve pain. That's where my problem was—my shoulders, neck, and arms. I couldn't get out of bed. –Participant 3

Regardless of these worries, patients shared that they were going through with the surgery because they would do anything to obtain relief or to have a better quality of life. For some patients, surgery signified the hope of getting their life back. As Participant 7 said, "I don't tend to be an anxious person…. I just want to get out, get on with my life." Others felt that having the surgery would be better than not having it due to the symptoms they were experiencing.

> I was a little hesitant to make sure in my own mind that I was doing the right thing. But I knew if I didn't [have the surgery], I probably wouldn't be walking today. So that was my choice: trying to do something or do nothing and not walk. –Participant 10

And for others, the pain was so excruciating that the prospect of getting some relief was enough to override their worries leading into surgery.

> I was to the point where it hurt to do anything. I couldn't sit, I couldn't stand, I couldn't walk very well. So getting rid of the pain has been the best thing. –Participant 7

Expectations

To discover what the patients' expectations were from spinal surgery, we learned that asking them directly was not sufficient for understanding what they imagined their recovery process to look like. Patients often mentioned vague, positive qualifiers in response to what they expected from surgery.

> To be honest, I thought I would go into—at least I felt like I was led to believe that—I would have the surgery, the pain would be relieved, and my neck would be stable and I could go on with my life. –Participant 2

> I thought that I would just hang out in the hospital bed, take my drugs, be on my phone, and just watch TV. –Participant 4

However, when we asked what part of their experience was surprising or unexpected, more detailed descriptions emerged.

> I guess I was thinking that my pain would be more centralized in my lower back in getting over this and I wasn't quite prepared for the nerve pain going down my legs. And that was probably a little difficult for me…. And I walk like a drunk sometimes…. Sometimes my balance is really goofy, and I swear if I ever had to walk a line, I couldn't do it. –Participant 7

> The only thing that really surprised me—I was completely disabled as far as being mobile. And maybe they didn't explain that to me, to my full benefit, that I would be completely disabled as far as walking and stuff like that. I thought I'd have more ambulatory ability…. I had to really work on that as far as learning how to walk again and I had to use a walker and practice. –Participant 8

Patients shared multiple stories about how their surgical experience was surprising to them. Patients appreciated when their surgeon corrected their expectations, and they had a much better approach to recovery when their expectations were well established during the preoperative appointments.

> The doctor, he prepared me that we're not necessarily doing this for pain—yes, mostly you're going to be out of a lot of pain, which I am, but he said the reality is we need to get you functioning. This is more of a surgery so you won't lose function or capability to use your hands and the weakness won't get worse…. So he warned me what we were doing it for…so I didn't have any false, or not necessarily false, not any expectations. –Participant 9

Recovery Process

Activity

Patients expressed a need for a more detailed long-term recovery plan from their health care team following spine surgery, as they assumed that being too active could result in negative physical consequences. This often led to patients being fearful of resuming normal activities.

> I haven't tried to push it. I've just tried to follow along with whatever the doctor or the therapists have said. –Participant 7

Listening to one's body is critical to understanding when it is time to rest and when to push further with activity. Some patients were able to recognize when their body was telling them to slow down, whereas others described imagining their bodies as fragile and to be handled with care. Recommendations provided by the health care team were followed exactly, but if less detailed or ambiguous guidance was given, patients found it difficult to trust their body perceptions. With more detailed, long-term guidance from the health care team, patients felt they could be more confident in resuming activities and progressing through the recovery process.

Pain Management Strategies

Pain after spine surgery is known to be intense and can have rippling effects on other outcomes.

> The excruciating pain I was having was tremendous.... I felt like crying a lot afterwards. I was in pain, and emotionally I was just a wreck. –Participant 11

To address pain management after spine surgery more effectively, we asked patients what strategies they used in their recovery. Prescription pain medications were either added to existing regimens or given to patients for the specific use of managing acute postoperative pain. Some patients experienced adverse effects after taking pain medications. One participant explained that she had not previously been on pain medication before the surgery, but as a result of taking the medications for acute postoperative pain, she was left incapacitated and unable to manage her own care.

> I wasn't clear-headed enough to understand what was going on with my pain meds and how they worked and how often I should take them and how much I should take. I was just in a muddle because [I was] on pain meds. I'm normally not on anything, so I was foggy. –Participant 3

Other patients expressed a dislike for taking pain medication or an intention to use as little medication as possible. Many tapered their medication usage and eventually stopped taking their prescriptions early.

> For the first 2 weeks, I pretty much followed the regimen that they had set up for me, and then I started cutting the daily doses down to about half. And over the next week and by the third week, I was taking maybe 1 tablet of pain medication at that time and that was it. –Participant 7

> I'm not going to be on pain medication any longer than I have to be, and that was a week, five days. –Participant 13

Several participants described using over-the-counter pain medications to assist in weaning off prescription pain medications and also for continued pain management.

> Once I finished the pain medicine...for a couple days after that, I took Tylenol like they had me take in the hospital so I wasn't without anything. Then I kind of weaned myself off that. –Participant 4

All patients used at least one nonpharmacologic pain management strategy. From the interview data, we identified 14 unique strategies, with the top three most common strategies being ice, heat (including hot water, shower, and bathtub), and relaxation or breathing techniques. Participants used these techniques in conjunction with pain medications and other nonpharmacologic strategies. In fact, patients interviewed used an average of four different pain management strategies during their recovery period.

Postoperative Supports in Recovery

Family and Social Support

One of the most prominent themes we identified from the interview data was the need to include family or other social supports in the preoperative preparation process so that they would be better prepared to take on their roles as caregivers during the recovery period. Family members need to know what will happen during the surgery, what the patient will need after surgery, and what limitations the patient will have. This information enables caregivers to make realistic plans to best assist the patient in their daily activities. One participant described how much she relied on her husband during the recovery period:

> During recovery and rehab and everything, he was my caretaker, chief cook, bottle washer, and everything else. He hauled me around different places.... He cooked, cleaned, helped me in the shower. He did everything. –Participant 7

Patients relied on their family caregivers to know what to do and to problem-solve if complications arose. Having a plan for what to do in certain circumstances such as managing pain would be very helpful for the patient and family so that they know how to respond. One participant described how his wife struggled in her caregiving role:

> My wife didn't know what to do relative to pain meds.... Should I be taking Aleve? Should I be taking Aspirin? Just any kind of the basics would have been great for everyone to hear at the same time. –Participant 2

In addition, family members need to be informed about how their lives will be impacted by the patient's surgery.

> Whatever happened...whether I lived fine or was left crippled or whatever else, or if everything came out all well, [my husband] was going to have to go through everything with me. –Participant 7

Family members need to be prepared for how crucial their role will be in the patient's recovery process. As one participant described, family was the most important source of support as he recovered:

> I was lucky enough to have great support from my family. In my opinion, [their support] is as important, if not more important, than the hospital help. Thank God I had that. –Participant 6

Lastly, family members need to learn how to address the worries and anxieties of the patient so that it does not cause them stress.

> When I was…I don't want to say freaking out, but real anxious…I just felt like something was around my neck, and that was not feeling good. When it happened, it stressed out [my husband] too. –Participant 9

> [Spouses] go through the same thing. They're dealing with everything their spouse is dealing with except the pain, and sometimes it's painful for them to watch their spouse go through the pain. I think my husband was, a lot of the time, more worried than I was. –Participant 7

Another participant referred to an experience when her husband was able to calm her, reducing her distress when she had frustrations about postoperative activity limitations.

> I didn't want to stop doing what I loved to do. And my husband plays a great deal in that. I would get mad at certain things. He would be like, "You know what, we're going to do this, we just have to do it differently." And so he's helped me a lot with how I think about things…. I pay a lot of respect to him. –Participant 14

Issues related to mobility, particularly driving, were most frequently cited as instances when patients had to rely heavily on family support after surgery. This was frustrating, particularly as patients and family members did not feel properly prepared for this limitation.

> It was difficult for my wife, it was hard on the kids, it was hard on me…. I needed to be driven everywhere, and I had limitations wherever I went. Whether I should've known it or not, I didn't. And that goes on for a long time. –Participant 2

Although relying on family members to drive was challenging, this instrumental support was also a coping mechanism that multiple patients used to manage their postoperative recovery distress. Riding with family, regardless of where they went, allowed them to get out of the house.

> Any time someone was in the car, I went with them because I couldn't drive…. That's what was nice, you know, I wasn't stuck in the house. I think I was there three weeks before I was finally released to drive. –Participant 1

Discussion

This descriptive study contributes to an understanding of experiences from the patient's perspective both before and after spine surgery. Although a significant body of literature exists on the experience of spine surgery, the impact of patient expectations on a variety of outcomes (e.g., satisfaction, function) is equivocal and warrants further study [21]. A recent pediatric study [15] that suggested that families felt unprepared for surgery and pain and would benefit from more detailed preparatory information and enhanced coping skills. The current study extended findings from this pediatric study [15] in an adult perioperative population. The responses to the interviews provided detailed insights on preoperative preparations, pain management, and family involvement. This rich insight would not have been possible using categorical response questionnaires for data collection. Our findings agree with previous research [15] that the perioperative period is stressful and that patients and family members may benefit from behavioral health services during the perioperative period to address coping skills and preparatory information. The results of this study will be used to enhance the HMC pain service and perioperative care team resources and to inform behavioral health services that can be offered to patients preoperatively to help better prepare and strengthen coping skills.

Preoperative Preparation

Patients shared multiple stories about how their experiences were surprising to them, which provides evidence about how crucial preoperative preparation is for spine surgery.

Patient preparation before surgery needs to include information about realistic expectations of the surgery and the postoperative recovery process. Findings from this study and other studies [22] indicate that patients do not feel adequately prepared for surgery, particularly in terms of adequate pain expectations and management. Patient expectations frequently exceed actual outcome [23], and patients with high preoperative expectations ultimately have lower proportions of expectations fulfilled [24]. Because spine surgery is highly invasive with the possibility of serious complications, the patient's health care team should have explicit discussions with the patient about expectations, including activity, pain management, and family support. By asking patients their motivations for having spine surgery, the health care team is better able to understand patient expectations about the surgery. By discovering what expectations a patient may have, the health care team may be better able to meet the patient where they are, then modify their expectations appropriately. Because unmet expectations have a high correlation with postoperative dissatisfaction [24], it is crucial that patients are heard by their health care team and receive information about both short- and long-term postoperative recovery plans.

Pain Management

As found in this study, and consistent with other studies [25, 26], postoperative pain management is challenging.

Procedure-specific pain management plans are recommended; however, the existence of acute pain services and implementation of enhanced recovery after surgery (ERAS) protocols are needed [26]. The American Pain Society Guidelines on the Management of Postoperative Pain [25] specifically recommend that pain management plans need to be made in partnership with the patient and family, ideally during preoperative preparation. Patients should be informed about the need for a multimodal regimen, including nonopioid medications and nonpharmacologic strategies [25]. A comprehensive pain management plan offering a range of pharmacological strategies, physical modalities, and cognitive–behavioral modalities will give patients the best opportunity to find a successful combination of strategies to control postoperative pain [25]. Our sample reported using numerous nonpharmacologic strategies, and some sought to taper off pain medicine quickly. Our results support the need for more nonpharmacologic strategies, particularly given the current opioid epidemic and evidence that 3–10% of opioid-naïve patients become chronic opioid users after surgery, as well as the reality that a high percentage of postdischarge opioid prescriptions after surgery go unused [27], increasing risk for diversion.

Patient-Centered Care

The results of this study illustrate how critical patient-centered care and social support are to the recovery process after spine surgery. The patients interviewed in this study shared that their family members needed to be better prepared for the surgery as their support during the recovery period was crucial to managing the patient's distress and physical symptoms. Although the patients recognized how important their family was to their recovery, family members often did not attend the preoperative appointment. If possible, patients should be encouraged to bring the person(s) who will be caring for them during recovery to the preoperative appointment. Preparing family and friends who are going to provide care during postoperative recovery may reduce distress for both the patient and the caregiver.

Limitations

Findings from this qualitative descriptive study were limited to one academic hospital and may not be representative of other settings. Like other exploratory studies, this study was designed to inform the development of an intervention in a specific population, which may limit its generalizability. Interviews were conducted during a wide range of months after surgery, so patients were at different stages of the recovery process, which may have affected their recall of the experience. In addition, our sample had limited sociodemographic diversity and may not represent a range of spine surgery experiences. The strength of our study is that by asking open-ended questions in an interview format, we were able to achieve a deeper understanding of patients' experiences in our hospital and to explore the meaning and personal interpretations of that experience [28]. This information gave us additional insight, beyond numerical questionnaires or forced-choice response categories, that we may use to better prepare future perioperative patients.

Conclusions

The results of this descriptive study can be used to guide future perioperative interventions for patients undergoing spine surgery. Unmet surgery expectations are an indicator for later patient dissatisfaction, even in the event of positive outcomes. Therefore, establishing realistic expectations of spine surgery is essential to proper preoperative preparation. Furthermore, family involvement in the preoperative preparation is important to reducing patient stress and ensuring proper support in the recovery process. The need for a comprehensive pain management strategy with attention to psychosocial and nonpharmacologic strategies is evident.

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