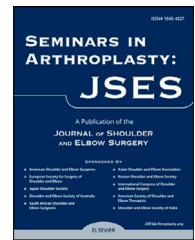


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Perceived influence of preoperative information in reverse total shoulder arthroplasty patients

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ABSTRACT

Background: While prehabilitation has shown benefits in other joint arthroplasties, specific preoperative guidance for reverse total shoulder arthroplasty (rTSA) remains underdeveloped. Patients often enter surgery with varying levels of preparedness and understanding, which can be shaped by inconsistent communication and limited resources. This study examines how patients perceive the preoperative education they received and how it influenced their recovery experiences.

Methods: A qualitative instrumental case study was conducted. Sixteen adult patients who underwent elective rTSA in the previous eight months were recruited from orthopedic clinics and a university hospital rehabilitation center in Washington, D.C. Semistructured interviews explored patients' expectations, pain management, functional challenges, and support systems. Transcripts were coded using thematic analysis guided by interpretive description to identify recurring patterns and insights.

Results: Four primary themes emerged from the analysis: communication with the health care team, pain expectations and management, caregiver support in recovery, and post-operative functional limitations. Participants described how thorough communication fostered trust in their surgeons and influenced their preparedness. Pain experiences varied, with many expressing confusion about opioid protocols and nerve block management. Caregiver support was universally cited as essential, particularly for patients recovering alone or undergoing surgery on their dominant side. Patients reported significant challenges with basic activities, such as dressing and bathing, often underestimating these limitations preoperatively. Sleep disruption and sling use were also highlighted as preoperative education topics that hindered or supported recovery.

George Washington University institutional review board approved this study (NCR246237).

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Conclusion: This study highlights the multifaceted nature of recovery following rTSA and emphasizes the need for tailored, practical preoperative education. While technical competence is essential, the provider's communication style and clarity are equally important in fostering patient trust and understanding. Patients benefit from education that sets realistic expectations about pain, sleep, daily functioning, and the critical role of caregiver support. By elevating the voices of patients, this study provides a deeper understanding of the patient experience after rTSA. It also suggests actionable opportunities for clinicians to enhance the content and delivery of preoperative counseling, ultimately supporting a more informed recovery journey for patients undergoing rTSA.

Level of evidence: Level V; Review Article

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The reverse total shoulder arthroplasty (rTSA) was initially designed for glenohumeral arthritis in conjunction with rotator cuff deficiency but has expanded to be a valuable tool for proximal humerus fractures, massive rotator cuff tears in the elderly, complex instability, and glenoid deformity.^{1,3} The incidence of rTSA has steadily increased, with nearly 150,000 cases reported between 2011 and 2020.⁸ As the indications for the surgery expand and its popularity grows, one question remains critical: how do these patients receive preoperative education, and how does it influence their recovery experiences?

Research demonstrates that patients who know what to expect from surgery have the potential for improved postoperative outcomes.¹² Furthermore, patients with higher preoperative confidence tend to have significantly better postoperative functional outcomes than those with lower confidence, even when accounting for other risk factors.³⁶ Implementing preoperative rehabilitation, or “prehab,” is one method to support patients' expectations of their surgical outcomes or recovery process.²⁴ Prehab has been extensively studied in total hip and knee arthroplasty, where it has been found to reduce anxiety, improve adherence to postoperative rehabilitation, and enhance patient satisfaction.^{9,17,21,24,25,29} Despite its benefits in other joint replacement surgeries, prehab for rTSA remains underdeveloped.^{7,13}

Chronic shoulder pain patients typically want to take an active role in managing their pain, physical limitations, and long-term recovery.^{5,19,20} Preoperative total shoulder arthroplasty (TSA) patients reported valuing in-person education more than booklets, websites, or videos.⁷ However, patients frequently cite inefficient communication with their health providers as a negative aspect of their shoulder replacement experience.²² Patients often turn to the internet for more information.^{15,26,35} Popular Google searches revealed that the most common patient concerns regarding shoulder replacements are recovery timelines, restrictions, and resuming specific activities.^{26,35} While much of the online information available comes from academic sources or scholarly publications, the average reading level may be challenging for the typical patient to understand.⁶ In addition, online information regarding postoperative care for rTSA procedures is scarce.¹⁰

Translational health research aims to bridge the gap between scientific discoveries and clinical application, ensuring that research findings are effectively implemented in real-world health care settings to improve patient outcomes.³² Qualitative research is a cornerstone in translational health research, focusing on understanding the human experience, beliefs, behaviors, and contextual factors that quantitative methods may overlook. Most qualitative literature in rTSA is limited to questionnaires, with only a few studies conducting semistructured interviews.^{5,31} In light of this gap, the purpose of this study was to examine the perceptions of patients undergoing a rTSA regarding how preoperative information influenced their recovery.

Materials and methods

Study design

This study employs a qualitative instrumental case study methodology, focusing on in-depth interviews with patients who have undergone an rTSA to capture a deep, nuanced exploration of each patient's experience.²³ A postpositivist/constructivist paradigm guided the research. From a postpositivist standpoint, the study acknowledges that while reality exists independently, it can only be understood imperfectly through subjective interpretations.¹⁸ The constructivist perspective further frames the study by recognizing that knowledge is co-constructed through the interactions between the researcher and participants, shaped by each individual's experiences, context, and meaning-making. These combined paradigms supported a structured yet flexible approach, emphasizing credible findings that respect the lived realities of participants while seeking patterns that can inform clinical practice.

Researcher characteristics

The interviewer was a full-time occupational therapist (OT) and certified hand therapist, not involved in the participants' care, to minimize bias. The research team's experiences with

rTSA patients may have influenced the selection of study questions, particularly the focus on preoperative education and recovery perceptions. Thus, the methodology employed cognitive interviewing and peer review to refine the interview guide, minimizing potential biases.

The interviewer also employed reflexive practices by actively reflecting on their perspectives and preconceptions throughout the study.²⁸ In addition to cognitive interviewing and peer review, the design included member checking, where findings were shared with participants to validate accuracy and ensure that the data reflected their perspectives. These reflexive practices ensured that the research process remained transparent, rigorous, and participant-centered, thereby strengthening the credibility and trustworthiness of the study's findings.

Sampling strategy

Participants were recruited through purposive sampling at three orthopedic clinics in Washington, D.C., and a large outpatient university hospital rehabilitation center between December 2024 and April 2025. Eligible participants were adult patients (aged 18 or older) who underwent an rTSA within the previous eight months. Inclusion criteria required that participants be willing to discuss their recovery experiences and were excluded if they had cognitive impairments or conditions that affected their ability to provide consent or participate in the interview. Recruitment continued until thematic saturation was achieved.

Ethics

The George Washington University Institutional Review Board (IRB) determined the study was exempt from IRB review (IRB #: NCR246237). Before participating, all participants received verbal information about the study's purpose, procedures, and confidentiality practices. They were informed that they could withdraw at any time without penalty. An informed consent document was also provided. Identifying information was removed from transcripts, and pseudonyms were used to protect participants' identities. All data were stored securely on a password-protected, secure university data platform.

Instrumentation and data collection

Semistructured interviews were conducted to capture participants' experiences and perceptions. An interview guide with open-ended questions was developed based on a review of existing literature⁵ and input from experts in orthopedic surgery and rehabilitation ([Supplementary Appendix S1](#)). All authors on this paper completed a content review of the interview guide prior to its finalization. Key topics included participants' understanding of rTSA preoperatively, their perceptions of the preoperative education provided, expectations of recovery vs. actual experiences, and suggestions for improving preoperative education.

The interviews were conducted via videoconferencing (Zoom) or in person. All interviews were audio-recorded with participant consent and then deleted after being transcribed verbatim for analysis via Otter.AI (Otter.AI, 2025).

Data analysis

Descriptive analysis was conducted using frequency counts and percentages to analyze demographic data. The qualitative data was analyzed using the thematic analysis six-step approach by Braun and Clarke.² This includes familiarization of data, generation of codes, combining codes into themes, reviewing themes, determining the significance of themes, and reporting of findings. Interpretive description informed the process, identifying and interpreting patterns in participants' preoperative and postoperative experiences. Using NVivo software (Lumivero, version 14.24.3), interview transcripts were systematically coded and categorized to identify recurring themes and patterns. First, each transcript was thoroughly reviewed to gain a general sense of the content and identify initial patterns. An initial round of open coding was conducted to capture a broad range of insights, followed by focused coding to refine and consolidate key themes related to the research questions. Themes were compared across participants to identify shared and unique perspectives, ensuring a comprehensive understanding of participants' experiences. An external review of the codebook to a transcript was conducted to ensure concurrence. The Standards for Reporting Qualitative Research were used in the preparation of the manuscript.²⁷

Results

Participants

Between December 2024 and April 2025, twenty participants expressed interest in participating, and eighteen were successfully interviewed, due to loss to follow-up. After initial coding, two participants who underwent immediate surgery following traumatic fractures were excluded to maintain a more homogenous sample focused on chronic shoulder dysfunction. The final sample consisted of 16 participants who had elected to undergo an rTSA. No anatomic TSA patients volunteered to participate in the study. Interviews averaged 33 minutes in length, with a range from 14 to 77 minutes. Among participants, 61% were female with an average age of 71 years, ranging from 56 to 81 years. Overall, 55% underwent surgery on their dominant side, 27% lived alone, and 22% were employed full time. Participants ranged from 20 to 164 days postsurgery, with an average of 78 days. Nearly all participants received their procedures from two fellowship-trained orthopedic surgeons practicing in Washington, D.C. See [Table I](#) for participant demographics.

Themes

Through thematic analysis, four central themes emerged: communication with the health care team, pain expectations and management, caregiver support in recovery, and functional limitations postoperatively. These themes illustrate how preoperative information, or the lack thereof, shaped patient expectations, preparedness, and overall recovery experience. Refer to [Table II](#) for a summary of the themes, codes, and poignant corresponding quotes.

Table I – Sample demographics (n = 16).

Participant	Age	Gender	Indications	Side of surgery	Dominant side	Work status	Live alone	Interview time (min)	Time since surgery at time of interview (d)
1	72	Female	Osteoarthritis	Right	Right	Retired	Yes	34	84
2	80	Female	Osteoarthritis	Right	Right	Retired	No	26	161
3	75	Male	Osteoarthritis	Left	Right	Retired	No	17	110
4	69	Female	Osteoarthritis	Left	Right	Retired	Yes*	14	39
5	56	Female	Osteoarthritis	Left	Left	Disability	No	16	56
6	65	Female	Osteoarthritis	Right	Right	Disability	No	27	79
7	72	Female	Osteoarthritis	Left	Right	Full time	No	43	30
8	63	Female	Nonunion fracture	Right	Right	Full time	Yes	43	72
9	72	Male	Osteoarthritis	Left	Right	Part time	Yes	77	23
10	81	Male	Rotator cuff tear/osteoarthritis	Right	Right	Retired	No	53	31
11	72	Male	Rotator cuff tear/osteoarthritis	Right	Right	Retired	No	25	164
12	78	Male	Osteoarthritis	Left	Right	Retired	No	34	78
13	78	Female	Osteoarthritis	Left	Right	Full time	No†	25	36
14	71	Female	Osteoarthritis	Right	Right	Retired	No	39	50
15	74	Female	Osteoarthritis	Right	Right	Retired	No	18	229
16	67	Female	Osteoarthritis	Right	Right	Full time	Yes	45	20

* Participant had family members who live in her apartment complex.

† Participant lived with her husband but he is disabled.

Theme 1: Communication with the Health Care team

Communication was a foundational element influencing participants' trust, confidence, and sense of preparedness before and after surgery. This included both preoperative education and postoperative interactions, spanning written instructions, verbal explanations, and the dynamics of various health care providers. Patients described how thorough communication, whether from the surgeon, administrative staff, or therapist, contributed to a sense of control and confidence in their recovery process. Written materials were often cited as helpful reference points, particularly when paired with an in-person follow-up. Participants emphasized the importance of receiving not only written handouts but also verbal clarifications that allowed them to process information in layers. Participants highlighted the value of having the opportunity to ask follow-up questions and to be reassured through face-to-face engagement in addition to reading the provided material.

Across interviews, participants described how communication with their surgeon shaped trust, confidence, and perceived preparedness. For many, trust was built through a sense of competence, while for others, it stemmed from the surgeon's willingness to listen and provide reassurance. Patients who characterized their surgeon as clear, approachable, and thorough reported greater confidence entering surgery and less anxiety during their recovery. Conversely, patients who perceived their communication as rushed or sparse felt unprepared for common postoperative challenges. Trust was not solely rooted in technical skill but also in the surgeon's ability to convey information in an accessible, patient-centered manner.

These accounts underscore that technical skill alone did not drive patient satisfaction. Soft skills, such as communication style, responsiveness, and the ability to instill realistic expectations, were equally critical. When trust was strong,

patients were more likely to feel prepared. When it was strained, they described lingering questions and doubts, even if the surgical outcomes were technically successful.

Participants frequently praised their physical therapist or OT for providing clear, actionable information that supplemented or even exceeded what the surgeon offered. Although often this information was provided postoperatively, they felt it still made a positive contribution to their early recovery process.

Theme 2: Pain Expectations and Management

Participants' expectations about pain and their experiences managing it varied widely. Several described feeling unprepared for the level of postoperative pain, despite generally trusting their surgical team. Some participants were surprised by how little pain they experienced. Patients who received detailed preoperative education about pain control options, expected pain trajectories, and tapering strategies felt more empowered and less fearful when navigating their recovery. Others who felt uninformed about the pain management plan reported feeling overwhelmed by their symptoms, with some expressing hesitancy or confusion regarding the nerve block or opioid use.

Uncertainty regarding opioid use and communication about pain medications were recurring issues. Patients struggled with unclear instructions and side effects around opioid usage. Several participants described miscommunications about dosage limitations and refill policies, which led to distress during the recovery period. Participants reported receiving mixed messages about when and how often to take medications, as well as confusion around the health care system's use and access to opioids.

Conversely, some participants found adequate pain relief through the use of multimodal approaches. Participants generally found nerve blocks beneficial but acknowledged

Table II – Themes, quotes, and codes.

Theme	Theme definition	Codes	Quote
Communication with the health care team	Clear, consistent, and empathetic communication from surgeons, administrative team, and rehabilitation providers played a crucial role in establishing trust and helping patients feel prepared and supported throughout their recovery journey.	Postop expectations, trust in surgeon, discussing surgical options, health care team, surgeon communication, questions regarding surgery, prep before surgery, anatomical understanding of condition, hospital stay, immediate postoperative recovery, change in routine, knowledge gaps, occupational/physical therapy, preoperative education, and alternative sources of info and written info provided	Participant 9: “[Surgeon's name] was so confident.... he's a little cocky, and I mean that in the nicest way... He was very informative. And that was the exact opposite of my experience at [another orthopedic practice]. And that doctor might be as knowledgeable as [Surgeon's name]. And again, I don't have to have my hand held more than the next person, but [Surgeon's name] was informative. He could illustrate, and he could say with confidence, ‘I know this is going to fix it.’ And if he had been wrong, that would have been bad, but it never occurred to me that he could be wrong.”
Pain expectations and management	Patients' experiences with postoperative pain varied widely, and those who received thorough preoperative education about pain management felt more empowered and less anxious compared to those who encountered confusion around medications and nerve block care.	Pain management, modalities, nerve block, preoperative pain, concern of damage to the repair, reason to have surgery, satisfaction with surgery, surgical precautions, and history of orthopedic surgery	Participant 16: “When I had the surgery, they gave me that nerve block, and then I had that little machine that I came home. I think that medicine made me feel yucky, because as soon as my daughter took it out on Tuesday, I felt much better while I was still in the sling. One thing that I was not happy with was that after the surgery, I was in a lot of pain. The hospital had said, ‘Oh, we're going to call you and see how you know the nerve block is, and you know we can adjust it if you need it adjusted.’ Well, they never called me. And finally, I called them, and they said they'll get back to me. Well, they didn't get back and then I think I had a call again and then they said, double up on the oxycontin, and you'll be okay. I did the double-oxycontin, and then starting that night, the next day, I started just with tylenol because I didn't want to be constipated. I had this one period of hurting, and then that went away. And then I realized it was that medicine that was making me not feel great, the one that was going in my neck.”

(continued on next page)

Table II – (continued)

Theme	Theme definition	Codes	Quote
Caregiver support in recovery	Regardless of personal independence, participants overwhelmingly emphasized the necessity of caregiver support for managing daily tasks, with many describing such support as essential rather than optional for a safe and successful recovery.	Living situation, support in recovery	Participant 7: "I arranged for a young lady I know, to come in the mornings once he went back to work, and she helped me shower and dress. She got my breakfast; she made my lunch so that it would be there when I needed it. She got me ready to go out for a walk. My winter coat has a lot of velcro, and I had to put the sling on over the coat because it was like in the single digits. The velcro on the sling was getting caught on the velcro and the coat and I was all tangled up and everything. But she helped me with that stuff... I just figured it would be a good idea to have somebody. She was only here for like, three, two to three hours, not even really, but she took care of that stuff. She put in a load of laundry for me. She emptied the dishwasher. That was hard to do. It's hard, you know, you don't think about how much you use both hands for that anyway. So, it was just super helpful. She took out the garbage, she put on a new roll of toilet paper because that's hard to do with only one hand, you know, just stuff like that."
Functional limitations in recovery	Patients faced significant challenges in performing basic activities of daily living, especially early in recovery, and often felt unprepared for limitations related to dressing, hygiene, sleep, and sling use without hands-on or practical guidance	Activity restrictions, activities of daily living, computer use, dressing, driving, meal management, personal hygiene, rec leisure activities, showering, work, current level of function, range of motion, sleep, sling, speed of recovery, and strength progression	Participant 3: "How to get in and out of clothes. To buy button down shirts before the surgery. I wouldn't have done those things. I wouldn't have known about it. What else... I certainly could never hook a bra. I'll never be able to do that. But I read that beforehand. They said, if that's what you want to be able to do- don't have the surgery. So, I understand that."
Sling management Sleep			Participant 16: "I got a lot of information about how to wear the sling from [the surgeon's] office. However, with the sling, you can't really see how to put it on correctly, because it's just pictures. And [surgeon's administrative assistant] was going to send me a link for a video, but the video thing was broken. I tried to understand how to make sure it was on right because I'm really anal, and I wanted it to be on just right. But it is just pictures in the presurgical instructions, I wish there was a video in there. When I went to the office and I asked the lady that let you into the rooms if the sling was on, she was not very helpful. And, just blew me off." Participant 2: "I had so much trouble sleeping. I was never comfortable. I was never in pain, but I had a lot of discomfort, which is probably the same as pain. It's just a little different. I couldn't get comfortable no matter what I tried. I tried pillows, I tried sitting up, I tried a wedge, I tried the recliner, and it just, it's just, just have to, I think you just have to get through it."

challenges, particularly regarding self-removal and managing medication dosage.

Nonpharmacological pain management strategies, such as ice machines/devices, were mentioned for reducing the reliance on opioids and increasing comfort. Some participants were advised to rent an ice machine/device for postoperative use, which they found beneficial. Patients who utilized some form of cooling modality reported a benefit in managing their pain without additional medication. Others used standard ice packs as a pain management tool if the ice machine/device was not recommended or too expensive to rent.

In summary, participants' experiences with pain after rTSA varied significantly, shaped by a combination of their understanding and the clarity and depth of preoperative education that they received. Those who felt well informed about pain trajectories and medication options were more empowered and better equipped to cope with discomfort, while others described feeling unprepared, overwhelmed, or confused.

Theme 3: Caregiver Support in Recovery

Participants universally expressed a crucial need for social support during recovery. Even those who considered themselves highly independent admitted that help was essential. Participants relied on spouses, adult children, neighbors, and hired aides to assist with daily tasks. Many emphasized that being alone after surgery was unrealistic. Practical help seemed not only beneficial but also indispensable.

Participants overwhelmingly emphasized the necessity of caregiver support during recovery from rTSA. Regardless of their typical level of independence, living situation, or surgical side, no one recovered completely on their own. Whether this was advised preoperatively or not, participants found that support with daily activities was not just helpful but essential. These accounts highlight the importance of postoperative support to ensure a manageable recovery.

Theme 4: Functional Limitations Postoperatively

Many patients emphasized the difficulty of performing basic activities of daily living (ADLs) with one functional arm, especially if the rTSA was on their dominant side. Those who had preoperative discussions about these challenges reported smoother transitions postsurgery. In contrast, patients without clear guidance on physical limitations immediately after surgery often faced unexpected barriers and feelings of frustration early in recovery. Many participants described how limitations in ADLs challenged their sense of autonomy. Even tasks that once seemed trivial became unexpectedly difficult. In particular, dressing, showering, and meal preparation emerged as central topics in postoperative experiences. These experiences reflect the broad impact of upper extremity surgery on everyday function and the importance of planning to modify both personal and household tasks.

Sling management

Sling management was another source of confusion and frustration that limited functional recovery postoperatively. Participants described a perception of unclear instructions, insufficient in-person guidance, and difficulties with proper

donning and doffing while using only one hand. Some participants noted that the printed diagrams were inadequate and expressed dismay that even members of the health care team were unsure how to apply the sling correctly. The few participants had a preoperative session with PT where they reviewed sling use and reported less confusion with management postoperatively. These accounts highlight the need for emphasis by both physicians and patients to engage in effective hands-on demonstrations or video-based resources to enhance patient understanding and adherence for sling management.

Sleep

Lastly, postoperative sleep emerged as a particularly challenging domain. Participants described how discomfort, an inability to lie on their preferred side, and unfamiliar sleeping positions disrupted their rest for weeks. Many participants highlighted that even when pain was not severe, night-time discomfort made sleep elusive and recovery more fatiguing. Numerous participants received recommendations preoperatively to use recliners, wedges, or special pillows. However, sleep disruptions persisted for many. These experiences highlight the importance of establishing realistic expectations for sleep disturbances and offering practical strategies to manage them.

Discussion

The themes presented in this study reflect the complex and deeply personal nature of recovery following an rTSA. Participants emphasized the critical role of communication with their health care team, describing how clarity, attentiveness, and trust in providers shaped their expectations and confidence throughout the surgical journey. Experiences with pain varied widely, revealing a spectrum of preparedness and underscoring the influence of both preoperative information and in-the-moment support. The importance of caregiver support was emphasized, with participants consistently reporting a dependence on others for basic tasks, regardless of their prior level of independence. Finally, functional limitations, particularly in performing ADLs, were a universal challenge, often underestimated before surgery. Together, these themes illustrate how recovery is shaped by both internal expectations and external supports, providing a nuanced understanding of the patient experience.

Consistent with prior studies, participants in this study emphasized that pain relief, return to self-care, and improved functional range of motion were primary goals after surgery.^{12,16,33} Like prior research, this study confirms that patients with strong preoperative confidence and trust in their surgeon tended to report greater satisfaction and perceived success in recovery.^{5,36} Our participants echoed findings from prior studies, citing ineffective communication or lack of clarity as a source of frustration and postoperative distress.⁵ The themes also reflect findings from a previous study regarding the information that preoperative TSA patients consider essential to understand.⁷ In addition, this study supports the conclusions of the total hip and knee arthroplasty literature, which indicate that tailored preoperative

Table III – Recommendations for practice.

Set realistic pain expectations	• Describe the typical pain timeline postsurgery. • Review medication use such as opioid schedule/refill policy/side-effects and the nerve block. • Discuss alternatives like ice and positioning.
Prepare for sleep disruptions	• Warn about sleep disturbances due to postoperative pain, sling, and movement restrictions. • Offer suggestions for sleep positioning (eg, recliner use, pillows).
Discuss specific functional limitations	• Explain how sling use will impact functional activities like dressing, bathing, and toileting regardless of hand dominance. • Provide examples of tasks that may be difficult with one arm and modifications available.
Encourage planning for caregiver support	• Ask patients who will help with daily tasks (meals, bathing, transportation). • Stress that even independent individuals will need short-term assistance.
Strengthen communication channels	• Provide concise, visual handouts, ideally ahead of the appointment. • Allow space for questions and clarify information. • Coordinate with pain management, occupational, or physical therapist for unified messaging.
Consider preoperative therapy	• Arrange for occupational or physical therapist to demonstrate how to apply and remove the sling. • Demonstrate or review how to perform daily activities with one hand. • Review therapy guidelines and expectations for recovery.

education has a positive influence on joint arthroplasty recovery.^{9,17,21,24,25} However, our study uniquely captures the specific experiences of patients undergoing rTSA, a population underrepresented in this realm.

Unlike prior studies that rely on survey or chart review methodologies, this study employed in-depth interviews to reveal the granular challenges of patients' early postoperative recovery and allow a deeper exploration of themes that were not described in earlier literature. Furthermore, while previous studies largely focused on the technical or clinical predictors of outcomes, this research highlights how the quality and style of preoperative education, not just its presence, shaped patient trust and understanding.

This study also delves into patients' insight into pain management experiences, particularly the confusion surrounding opioid use, nerve block removal, and nonpharmacological strategies like ice machines/devices. Consistent with previous research, ice machines/devices have demonstrated excellent efficacy in decreasing pain and reducing reliance on opioids.^{11,14} However, in our local system, insurance companies typically only cover these devices for surgeries involving the lower extremities. This discrepancy can lead to a treatment barrier for patients who cannot afford to rent one. Regardless of etiology, participants' uncertainty about medication timing, dosage, side effects, and refill protocols represents a novel finding not discussed in detail in prior rTSA literature. This suggests a gap between clinical instruction and patient comprehension, even when discharge instructions are provided. While previous studies have analyzed opioid usage in TSA patients and identified a dose-dependent relationship between postoperative opioid use and adverse outcomes, this study adds qualitative context to how patients interpret and navigate those pain management strategies.³⁴

Notably, this study identifies the importance of caregiver involvement during the first few weeks of recovery. While caregiver support is often implied in orthopedic recovery, this study offers explicit examples of how reliance on spouses, friends, or hired help directly impacted patients' ability to manage daily life, especially when the surgery was on their dominant side. These findings provide context for why

patients who live alone ranked items related to presurgery information as extremely important compared to those with a caregiver.⁷ The specificity of these functional barriers (eg, putting on coats, toileting, or showering) offers practical implications for presurgical counseling.

There are several limitations to qualitative designs that affect the generalizability of the findings, most notably that insights are intended to deepen understanding of individual experiences, which may vary widely depending on demographics, clinical settings, and geographic regions. Individuals who volunteered for the study may have been more motivated, articulate, or had particularly positive or negative experiences, which could potentially skew the results. Although efforts were made to include a range of demographics, certain populations may be underrepresented in the sample, which could affect the comprehensiveness of the findings. Recruitment relied heavily on provider referrals and patient willingness to participate. This may have excluded patients who were less engaged with their care, had limited availability, or were experiencing more complex recoveries, thus limiting the study's range of perspectives.

Participants were interviewed at varying points in their recovery, ranging from a few weeks to several months postoperatively. This may have introduced recall bias, especially regarding preoperative education or immediate postsurgical experiences. While the study initially included both elective and acute rTSA cases, only elective patients were analyzed in the final sample to maintain homogeneity. This brought into focus the emotional and logistical differences between elective and acute rTSA, which are minimally addressed in the literature and not qualitatively explored.^{4,30}

Lastly, these findings reflect the patient experience and, as such, offer only one lens through which to understand the recovery process, providing valuable insights but not the whole picture, as perspectives from surgeons, caregivers, or OT/PT were not included. It is unknown if some perceptions of not receiving information were due to a lack of delivery by clinic personnel or a lack of patient follow-through on

instructions. Based on the voices of patients in this study, several clear opportunities for improving preoperative care in this patient population emerged. See Table III for practice recommendations.

Conclusion

This study provides valuable insights into how preoperative education and patient comprehension influences the recovery experience following rTSA. Through in-depth interviews, patients revealed how communication with the health care team, pain expectations and management, caregiver support, and functional limitations shaped their postoperative journey. These findings underscore the importance of patient-centered education that is timely, specific, and reinforced by clear communication. By elevating the voices of patients, this study provides a deeper understanding of recovery after rTSA.

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Supplementary data

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