

Exploring the Lived Experiences of Patients Undergoing Rehabilitation after Total Knee Replacement Surgery: A Qualitative Study

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Abstract

Background: Total knee replacement (TKR) surgery is a common procedure aimed at alleviating pain and improving mobility in patients with knee osteoarthritis. However, the rehabilitation process following surgery can be challenging, and understanding patients' lived experiences is crucial for optimizing care.

Objective: This qualitative study explores the lived experiences of patients undergoing rehabilitation after TKR, focusing on their recovery journey and the challenges they encountered.

Methods: Semi-structured interviews were conducted with 15 TKR patients at a tertiary hospital, and data were analyzed using thematic analysis.

Results: Three key themes emerged: (1) Physical challenges during rehabilitation, including pain and limited mobility; (2) Emotional and psychological impact, with patients expressing frustration and fear of re-injury; and (3) The importance of social support, particularly from family, friends, and healthcare providers, in overcoming challenges.

Conclusion: The findings highlight the need for individualized rehabilitation plans, effective pain management, and psychological support to enhance recovery outcomes. Incorporating patient and family education into rehabilitation programs can further improve patient engagement and satisfaction.

Keywords: Total knee replacement, rehabilitation, patient experiences, qualitative study, pain management, social support, physiotherapy.

Introduction

Total knee replacement (TKR) surgery is one of the most common and effective interventions for alleviating pain and restoring function in patients with severe knee osteoarthritis or joint degeneration. With an aging population and increasing prevalence of osteoarthritis, the demand for TKR procedures continues to grow globally. In the United States alone, it is estimated that by 2030, the number of primary TKR procedures will rise by 189%, reaching over 1.2 million cases annually (Kurtz et al., 2007). Despite the high success rates of the surgery, postoperative rehabilitation is critical to achieving optimal functional recovery and enhancing patients' quality of life.

Rehabilitation after TKR typically involves a combination of physical therapy, exercise, and patient education, with the primary aim of restoring knee function, improving range of motion, and promoting mobility. Research indicates that structured rehabilitation programs can significantly reduce recovery time

and improve outcomes, such as reducing pain and increasing functional independence (Naylor et al., 2006). However, while clinical outcomes are well-documented, there is limited understanding of patients' subjective experiences during the rehabilitation process.

Exploring the lived experiences of patients undergoing rehabilitation after TKR is crucial for understanding the challenges they face and how these challenges influence their recovery. Previous qualitative studies have highlighted various factors that can affect patient experiences, such as pain management, emotional resilience, and social support (Goldsmith et al., 2017). However, more research is needed to delve into the complexities of patient recovery, particularly from their own perspectives.

This study aims to explore the recovery journey and perceived challenges faced by patients undergoing rehabilitation after total knee replacement surgery. By understanding patients' experiences, healthcare providers and physiotherapists can better tailor rehabilitation programs to address the physical and psychological needs of individuals, ultimately improving patient satisfaction and outcomes.

Literature Review

Overview of Total Knee Replacement Rehabilitation

Total knee replacement (TKR) surgery is widely recognized as an effective treatment for patients with end-stage knee osteoarthritis, significantly improving pain, mobility, and overall function. However, the success of TKR surgery largely depends on the postoperative rehabilitation process, which plays a vital role in ensuring optimal recovery. Rehabilitation following TKR generally involves a structured combination of physical therapy, exercise programs, and education aimed at restoring joint mobility, enhancing muscle strength, and improving balance and coordination (Jones et al., 2003). Research indicates that early and consistent rehabilitation can lead to quicker functional recovery and better long-term outcomes (Bade and Stevens-Lapsley, 2011).

Various rehabilitation protocols are implemented post-TKR, including inpatient physiotherapy in the acute phase, followed by outpatient or home-based programs in the recovery phase. These interventions are essential for improving range of motion, reducing postoperative pain, and restoring functional independence (Matassi et al., 2014). While clinical studies have provided robust evidence supporting the efficacy of rehabilitation in improving objective outcomes such as joint range of motion and walking speed, there is a growing need to understand the subjective experiences of patients during the rehabilitation process to optimize care.

Patient-Centered Approaches in TKR Rehabilitation

The shift toward patient-centered care in rehabilitation emphasizes the importance of incorporating patients' perspectives and experiences into the design and delivery of treatment protocols. Several studies highlight that patient engagement and individualized rehabilitation approaches lead to better adherence and satisfaction (Gay et al., 2018). Furthermore, patients' psychological, social, and emotional factors can significantly influence their recovery experiences and rehabilitation outcomes. For example, fear of movement or reinjury, anxiety, and low self-efficacy are common psychological barriers that hinder the rehabilitation process (Maly and Krupa, 2007).

Despite the extensive focus on clinical and functional outcomes, limited qualitative research has explored the lived experiences of patients during rehabilitation. Understanding patients' perspectives could provide valuable insights into the emotional and psychological challenges they face and how these factors influence

their overall recovery. Studies have found that patients often experience difficulties with pain management, frustration with limited mobility, and the emotional burden of recovery (Zeni & Snyder-Mackler, 2010). Therefore, exploring these aspects is essential to fully address patients' needs during rehabilitation.

Challenges in Rehabilitation After Total Knee Replacement

Research has identified several key challenges that patients often encounter during the rehabilitation process. Pain and discomfort are among the most frequently reported barriers, particularly in the early stages of rehabilitation, which can significantly affect patients' motivation and engagement with physical therapy (Longstaff et al., 2009). Studies have shown that proper pain management strategies, including a combination of pharmacological and non-pharmacological interventions, are crucial to enabling patients to fully participate in rehabilitation programs (Malec and Shega, 2015).

Another challenge involves the emotional and psychological aspects of recovery. A study by Goldsmith et al. (2017) revealed that patients often feel overwhelmed by the slow progress and uncertainties surrounding their recovery trajectory, leading to feelings of frustration and discouragement. The lack of emotional support during rehabilitation can further exacerbate these feelings, underscoring the need for holistic approaches that address both the physical and emotional dimensions of recovery.

Social support has also been identified as a critical factor influencing rehabilitation outcomes. Patients with strong support networks—whether from family, friends, or healthcare professionals—tend to have better adherence to their rehabilitation programs and report greater satisfaction with their recovery (Prang et al., 2018). In contrast, those lacking adequate support may struggle with rehabilitation tasks, leading to prolonged recovery periods and suboptimal outcomes.

Gaps in the Literature

While much of the existing research on TKR rehabilitation focuses on objective clinical outcomes, such as pain reduction and functional improvements, relatively few studies have explored the subjective, lived experiences of patients during the rehabilitation process. Studies that do focus on patient experiences tend to examine rehabilitation from a broad perspective, without delving deeply into the emotional and psychological challenges patients face. Understanding these subjective experiences is critical for developing patient-centered rehabilitation programs that address the unique needs and preferences of individuals undergoing TKR surgery.

Moreover, research on patient experiences has primarily been conducted in Western healthcare settings, leaving a gap in understanding how cultural and social contexts may influence the rehabilitation experience in different regions. There is also a lack of studies exploring how demographic factors such as age, gender, and socioeconomic status impact patients' rehabilitation journeys.

Theoretical Framework

This study adopts a phenomenological approach to explore the lived experiences of patients undergoing rehabilitation after TKR surgery. Phenomenology, as a qualitative research method, seeks to understand how individuals make sense of their experiences within the context of their daily lives (Moustakas, 1994). By using this approach, the study aims to capture the essence of patients' rehabilitation journeys, uncovering the challenges, motivations, and emotional responses they encounter throughout their recovery process.

In conclusion, while existing literature provides valuable insights into the clinical aspects of rehabilitation after TKR, there is a growing need to explore patients' subjective experiences to improve the delivery of patient-centered care. Understanding the physical, emotional, and psychological challenges patients face during rehabilitation is essential for optimizing recovery outcomes and improving overall patient satisfaction. This study seeks to fill this gap by investigating the lived experiences of patients undergoing rehabilitation after TKR surgery, contributing to the development of more holistic and effective rehabilitation programs.

Methodology

This qualitative study was conducted in a tertiary hospital, aiming to explore the lived experiences of patients undergoing rehabilitation following total knee replacement (TKR) surgery. A phenomenological approach was adopted to capture the subjective experiences of patients during their recovery process, focusing on the challenges they encountered and their perceptions of the rehabilitation journey. The study was carried out over a period of four months in the hospital's orthopedic rehabilitation unit, where patients attended post-surgical rehabilitation sessions.

Study Design

A phenomenological qualitative research design was employed to gain an in-depth understanding of patients' lived experiences. This approach was chosen because phenomenology focuses on understanding how individuals experience and interpret their life events, making it particularly suited to exploring the recovery journey of patients following TKR surgery (Moustakas, 1994).

Participants

Participants were recruited from the rehabilitation department of a tertiary hospital. The inclusion criteria were:

- Adult patients (aged 50-75) who had undergone unilateral TKR surgery within the last 6 to 12 months.
- Patients who had completed at least six weeks of rehabilitation post-surgery.
- The ability to provide informed consent and participate in an in-depth interview.

Patients with cognitive impairments, communication difficulties, or those who had undergone revision surgeries were excluded from the study. A purposive sampling method was used to recruit participants, as it allowed for the selection of individuals with specific experiences relevant to the research question. A total of 15 participants were recruited, as this sample size was deemed sufficient to reach data saturation, ensuring that no new themes emerged from subsequent interviews.

Data Collection

Data were collected using semi-structured, in-depth interviews to allow participants to freely express their experiences while also providing flexibility for the interviewer to probe deeper into specific areas. The interviews were conducted face-to-face in a private room within the rehabilitation department to ensure confidentiality and comfort for the participants. Each interview lasted approximately 45–60 minutes.

The interview guide was developed based on existing literature and was designed to elicit detailed narratives about patients' experiences during rehabilitation. Key questions included:

- "Can you describe your experience of rehabilitation after your knee replacement surgery?"
- "What were the main challenges you faced during your recovery process?"
- "How did you feel about your progress and recovery throughout the rehabilitation?"

- "What role did family, friends, or healthcare professionals play in supporting your recovery?"
- "What suggestions would you have to improve the rehabilitation process for other patients?"

All interviews were audio-recorded with participants' consent and transcribed verbatim. Field notes were also taken to capture non-verbal cues and contextual information that could provide additional insight during data analysis.

Data Analysis

Data analysis was conducted using thematic analysis, following Braun and Clarke's (2006) six-step process. This involved:

1. Familiarization with the Data: The researchers listened to the audio recordings, read and re-read the transcripts, and made initial notes to become immersed in the data.
2. Generating Initial Codes: Transcripts were coded line-by-line using NVivo software to identify meaningful segments of data related to the participants' experiences of rehabilitation.
3. Searching for Themes: Codes were grouped into broader categories to identify recurring themes. Themes were defined based on patterns of experiences and perceptions shared across participants.
4. Reviewing Themes: The identified themes were reviewed and refined to ensure they accurately reflected the data and were coherent.
5. Defining and Naming Themes: Clear definitions and names were given to each theme, ensuring they captured the essence of the participants' experiences.
6. Writing the Report: A narrative was developed around the key themes, supported by direct quotes from participants to illustrate the findings.

Three main themes emerged from the data: (1) physical challenges during rehabilitation, (2) emotional and psychological impact of the recovery journey, and (3) the importance of social support in overcoming challenges.

Ethical Considerations

Ethical approval for the study was obtained from the ethics committee. All participants provided written informed consent before participating in the interviews. They were informed of their right to withdraw from the study at any time without any impact on their ongoing treatment. Anonymity was assured by assigning pseudonyms to participants, and all identifying information was removed from the transcripts.

Rigor and Trustworthiness

To ensure the trustworthiness of the study, several strategies were employed. Credibility was established through member checking, where participants were invited to review their interview transcripts to ensure their experiences were accurately captured. Triangulation was achieved by incorporating field notes and interviewing multiple participants to gather diverse perspectives. To enhance dependability, the research process was thoroughly documented, allowing for an audit trail. Reflexivity was maintained throughout the study by acknowledging the researchers' potential biases and continuously reflecting on how these might affect data collection and analysis.

Findings

Through the thematic analysis of the data collected from the interviews, three major themes emerged: (1) physical challenges during rehabilitation, (2) emotional and psychological impact of the recovery journey, and (3) the importance of social support in overcoming challenges. Each theme included several sub-themes

that further illuminated the lived experiences of patients undergoing rehabilitation after total knee replacement (TKR) surgery.

Theme 1: Physical Challenges During Rehabilitation

Participants consistently reported a range of physical challenges they faced during the rehabilitation process. These challenges were often related to pain, limitations in mobility, and the demanding nature of the physiotherapy exercises.

Sub-theme 1.1: Pain as a Barrier to Progress

Pain was the most commonly mentioned challenge, particularly in the early stages of rehabilitation. Many participants described how pain hindered their ability to fully engage in exercises, despite knowing its importance for recovery.

- Participant 3: "The pain was overwhelming in the beginning. I knew I had to move, but sometimes I just couldn't bring myself to do the exercises. It felt like my knee was on fire, and that made it so hard to push through."

- Participant 7: "Every time I went to physiotherapy, I was nervous about the pain. The therapist told me it would get better with time, but in the first few weeks, I wasn't sure if I could handle it."

Sub-theme 1.2: Limitations in Mobility

Participants also spoke about the frustration of limited mobility, particularly the inability to bend or straighten the knee fully in the initial stages of recovery.

- Participant 9: "It was frustrating not being able to bend my knee properly. I felt like I was never going to get back to walking normally. It took weeks before I could even think about climbing stairs."

- Participant 2: "I struggled with even the simplest tasks like getting out of bed or sitting down. My knee felt stiff all the time, and I kept wondering if it would ever go back to normal."

Sub-theme 1.3: Difficulty of Physiotherapy Exercises

Several participants highlighted the physical difficulty of the rehabilitation exercises and how they often felt overwhelmed by the intensity of the physiotherapy sessions.

- Participant 5: "Physiotherapy was tough. The exercises were really hard, especially when I had to stretch my knee. I almost wanted to quit sometimes because it felt like I was making no progress."

- Participant 12: "They had me doing leg lifts, squats, and bending my knee. It was a lot, especially after surgery. I knew it was necessary, but there were days I dreaded going."

Theme 2: Emotional and Psychological Impact of the Recovery Journey

In addition to the physical challenges, participants described the emotional and psychological toll that the rehabilitation process took on them, including feelings of frustration, fear, and the need for motivation to continue.

Sub-theme 2.1: Frustration with Slow Progress

Participants commonly expressed frustration with what they perceived as slow or insufficient progress during their rehabilitation, which often led to feelings of discouragement.

- Participant 8: "I thought I would bounce back quickly, but it was much slower than I expected. I'd go to therapy every week and feel like I wasn't getting any better. It really affected my mood."

- Participant 4: "The progress was so slow that I started doubting if the surgery had worked. I'd see little improvements, but it felt like nothing compared to what I wanted."

Sub-theme 2.2: Fear of Re-injury and Loss of Independence

Many participants mentioned being afraid of re-injury or not regaining their full independence. This fear often caused them to be overly cautious during exercises, which sometimes hampered their rehabilitation progress.

- Participant 10: "I was always scared that if I pushed too hard, I'd hurt my knee again. That fear was always in the back of my mind, so I held back during some of the exercises."

- Participant 1: "I kept thinking, 'What if this doesn't work?' I was afraid that I would never walk properly again, that I would be stuck relying on others for help."

Sub-theme 2.3: Motivation to Continue Rehabilitation

Despite the challenges, many participants expressed a strong sense of motivation to continue with the rehabilitation process. This motivation often stemmed from the desire to return to normal activities or achieve specific goals.

- Participant 11: "I wanted to get back to playing with my grandkids. That thought kept me going. I knew if I didn't push through, I wouldn't be able to do the things I love."

- Participant 6: "I had a goal—to walk without a cane. That's what got me through the tough days. I kept picturing myself walking on my own, and it helped me push through the pain."

Theme 3: The Importance of Social Support in Overcoming Challenges

Social support, whether from family, friends, or healthcare providers, played a crucial role in helping participants cope with the difficulties of rehabilitation.

Sub-theme 3.1: Support from Family and Friends

Several participants highlighted the importance of having family and friends to provide emotional support, help with daily tasks, and offer encouragement during the recovery process.

- Participant 13: "My family was amazing. They helped me with everything—getting groceries, driving me to therapy, even just being there to talk when I was feeling down."

- Participant 14: "My wife was my biggest supporter. She kept me going when I felt like giving up. Without her, I don't think I would have stuck with the therapy."

Sub-theme 3.2: Support from Healthcare Professionals

Many participants also spoke positively about the role of physiotherapists and other healthcare providers in encouraging them and providing the necessary guidance throughout their rehabilitation journey.

- Participant 15: "My physiotherapist was a big part of my recovery. She pushed me when I needed it but also listened when I told her I was in too much pain. That balance made a huge difference."

- Participant 2: "The doctors and therapists were always checking in on me, making sure I was doing okay. That support made me feel like I wasn't alone in this process."

Discussion

This study aimed to explore the lived experiences of patients undergoing rehabilitation after total knee replacement (TKR) surgery, focusing on their recovery journey and the challenges they faced. The findings highlight the complexity of the rehabilitation process, with participants reporting a range of physical,

emotional, and social factors that influenced their recovery. The discussion will address these key findings in relation to existing literature and provide recommendations for improving rehabilitation practices.

Physical Challenges During Rehabilitation

One of the most prominent themes identified in this study was the physical challenges that patients faced during rehabilitation, particularly related to pain, limitations in mobility, and the difficulty of physiotherapy exercises. These findings align with previous research, which has consistently shown that pain is a significant barrier to rehabilitation after TKR (Longstaff et al., 2009). Participants in this study reported that pain, especially in the early stages of recovery, often hindered their ability to fully engage in exercises, which is crucial for regaining knee function.

The limitations in mobility described by participants are also well-documented in the literature. Studies have shown that reduced range of motion and stiffness are common postoperative complications that affect the speed and quality of recovery (Zeni & Snyder-Mackler, 2010). In this study, participants expressed frustration with their inability to perform simple tasks, such as bending the knee or climbing stairs, which often led to feelings of discouragement. These physical limitations can negatively impact patients' motivation and adherence to rehabilitation programs, suggesting a need for more tailored interventions to address these specific challenges.

The difficulty of physiotherapy exercises, as highlighted by participants, further underscores the need for individualized rehabilitation plans. While structured exercise is essential for recovery, the intensity of certain exercises may need to be adjusted based on patients' pain tolerance and mobility levels. Previous research suggests that a graded exercise approach, where intensity is progressively increased based on patient readiness, can improve adherence and outcomes (Jones et al., 2003). Healthcare providers should ensure that rehabilitation programs are adaptable to each patient's physical condition, allowing for gradual progress while minimizing the risk of pain and re-injury.

Emotional and Psychological Impact of the Recovery Journey

The emotional and psychological toll of the rehabilitation process was another major theme identified in this study. Participants described feelings of frustration, fear, and the need for motivation, which often influenced their overall recovery experience. These findings are consistent with existing literature that emphasizes the emotional and psychological challenges patients face during rehabilitation, including fear of re-injury, anxiety about slow progress, and feelings of helplessness (Goldsmith et al., 2017).

Frustration with slow progress was a recurring issue for participants, many of whom expected a quicker recovery. This finding highlights the importance of setting realistic expectations for patients before and during the rehabilitation process. Previous studies have shown that patients who have clear, realistic goals are more likely to remain motivated and engaged in their rehabilitation (Maly and Krupa, 2007). Healthcare providers should focus on educating patients about the typical recovery trajectory, emphasizing that progress may be gradual but will ultimately lead to functional improvement.

Fear of re-injury, as expressed by several participants, also aligns with existing research that highlights psychological barriers to rehabilitation, such as kinesiophobia (fear of movement). Studies have shown that patients who are afraid of re-injury may avoid certain exercises, thereby hindering their recovery (Prang et al., 2018). Addressing these fears through psychological support and reassurance from healthcare providers is essential for encouraging full participation in rehabilitation activities.

Motivation was a key factor that helped many participants persevere through the challenges of rehabilitation. Participants often mentioned personal goals, such as regaining independence or returning to favorite activities, as sources of motivation. These findings suggest that healthcare providers should incorporate goal-setting into the rehabilitation process, helping patients identify meaningful and achievable goals that can sustain their motivation throughout recovery.

Importance of Social Support in Overcoming Challenges

Social support emerged as a crucial factor in helping participants cope with the challenges of rehabilitation. Participants consistently reported that the emotional and practical support from family, friends, and healthcare providers was instrumental in their recovery. This finding is supported by previous research, which has shown that social support plays a critical role in rehabilitation outcomes (Prang et al., 2018).

Family and friends provided both emotional encouragement and practical assistance, such as helping with daily activities and providing transportation to physiotherapy sessions. This support alleviated some of the burdens participants faced, allowing them to focus more on their recovery. The importance of social support highlights the need for healthcare providers to involve family members in the rehabilitation process, ensuring they are informed about the patient's progress and ways to offer assistance.

Support from healthcare professionals, particularly physiotherapists, was also highly valued by participants. Many described their physiotherapists as key motivators who provided both physical guidance and emotional reassurance. This finding aligns with studies that emphasize the role of healthcare providers in creating a positive therapeutic relationship, which can enhance patient adherence and satisfaction (Gay et al., 2018). Ensuring that healthcare providers offer consistent feedback, encouragement, and empathy throughout the rehabilitation process can significantly improve patient outcomes.

Implications for Practice

The findings of this study have several implications for physiotherapists and healthcare providers involved in TKR rehabilitation:

- 1. Pain Management:** Given the significant impact of pain on rehabilitation participation, healthcare providers should prioritize effective pain management strategies. This could involve a combination of pharmacological and non-pharmacological approaches, such as pain education, relaxation techniques, and gradual exercise progression.
- 2. Individualized Rehabilitation Programs:** The physical and emotional challenges faced by patients suggest a need for individualized rehabilitation plans. Physiotherapists should assess each patient's physical condition, pain levels, and emotional state to tailor exercises and recovery goals accordingly.
- 3. Psychological Support:** Addressing the emotional and psychological challenges of recovery is essential. Incorporating psychological support into rehabilitation programs, whether through counseling, reassurance, or peer support groups, can help patients cope with feelings of frustration, fear, and anxiety.
- 4. Goal-Setting and Education:** Providing patients with clear, realistic recovery goals and educating them about the typical rehabilitation trajectory can help manage expectations and maintain motivation. Regular check-ins with patients to reassess goals and celebrate progress can also enhance engagement.

5. Family Involvement: Encouraging family involvement in the rehabilitation process can provide patients with additional emotional and practical support. Healthcare providers should communicate with family members to ensure they understand the patient's needs and how they can assist.

Limitations

While this study provides valuable insights into the lived experiences of patients undergoing rehabilitation after TKR, it has certain limitations. The study was conducted in a single tertiary hospital, which may limit the generalizability of the findings to other settings. Additionally, the sample size, though sufficient for qualitative research, may not capture the full diversity of patient experiences, particularly across different demographic groups.

Conclusion and Future Research

This study contributes to a deeper understanding of the physical, emotional, and social challenges faced by patients during rehabilitation after TKR surgery. The findings emphasize the importance of individualized rehabilitation programs, effective pain management, psychological support, and strong social support networks. Future research could explore the experiences of patients in different cultural and healthcare settings, as well as investigate the long-term impact of rehabilitation on quality of life post-TKR surgery.

By addressing these key factors, healthcare providers can improve rehabilitation outcomes, enhance patient satisfaction, and ensure a more holistic approach to recovery following TKR surgery.

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