PATIENT EXPERIENCES FOLLOWING TOTAL KNEE ARTHROPLASTY IN PESHAWAR, PAKISTAN: A QUALITATIVE THEMATIC ANALYSIS

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ABSTRACT

OBJECTIVES

This study aimed to explore the psychosocial, cultural, and economic factors that influence the decision to undergo TKA and the postoperative recovery process in a resource-limited context.

METHODOLOGY

A qualitative descriptive study was conducted using semi-structured interviews with 31 patients (16 females, 15 males; aged 48-82 years) recruited from public and private hospitals between January and May 2025. Data were analyzed using Braun and Clarke's reflexive thematic analysis framework. Data saturation was achieved after 31 interviews.

RESULTS

Five overarching themes emerged: 1. preoperative suffering and fear, 2. hospital experience amid systemic constraints, 3. inequities in postoperative rehabilitation, 4. cultural and financial determinants, and 5. transformative outcomes post-surgery. Delayed surgical decision-making, reliance on traditional healing (55%), and significant financial burden (79% catastrophic expenditure) were prominent findings.

CONCLUSION

TKA in Peshawar involves a complex biopsychosocial journey, shaped by cultural norms, economic hardship, and limitations in the health system. Addressing disparities in rehabilitation access and financial protection is critical to optimizing outcomes.

KEYWORDS: *Total Knee Arthroplasty, Patient Experience, Pakistan, Qualitative Research, Rehabilitation Access*

INTRODUCTION

Total Knee Arthroplasty (TKA) is a highly effective surgical procedure that restores mobility in over 90% of patients with end-stage knee osteoarthritis globally.[1] This procedure involves replacing a damaged or worn-out knee joint, often caused by trauma or osteoarthritis, with an artificial implant (prosthesis). The primary goals of TKA are to reduce pain, increase mobility, and restore functionality when conservative treatments, such as medication and physical therapy, have proven ineffective.[2,3,4] For many patients, knee pain significantly restricts their ability to perform daily tasks, such as walking, dressing, cooking, cleaning, and climbing stairs. The potential benefits have been observed that many patients, especially in developing countries like Pakistan, hesitate to undergo the procedure, even when experiencing severe pain.[5] Patients in Khyber Pakhtunkhwa face additional barriers due to socioeconomic constraints, cultural norms, and misconceptions about the procedure. These factors contribute to a reluctance to seek TKA, even when knee pain significantly impacts quality of life. Jacobson and co believe that race, sex, ethnicity, socioeconomic status, and educational material play a vital role in pre- and post-operation of TKA.[2] In their paper they mention four points which are common amongst patients in need of TKA, almost every patient goes through these stages; Putting up and putting off - Patients endured severe knee pain for years, changing activity and postponing surgery using alternate methods, Waiting and worrying - After choosing on TKR, patients felt anxious and unsure about the procedure, complications, and recovery, Letting go and letting in - Patients fought with losing their independence, but eventually accepted help, support, and the new knee as part of themselves and Hurting and hoping - Despite substantial postoperative discomfort, patients remained hopeful for functional progress and a higher quality of life.[6,7] This series of emotions may be because of how little people know about the procedure, and that TKA may seem intimidating in the beginning. McDonald and co researchers write that patients who had some knowledge about the procedure before the operation had less anxiety than those of others.[8] Though anxiety in itself does not play a role in a patient's physical recovery, it can boost confidence, which in turn helps the patient with the steps required for recovery, such as the first walk after surgery. In the paper, they write that psychological well-being affects

the functional outcomes of the surgery. Moreover, they note that patients who were well informed pre-operatively had their hospital stay cut short by an average of 2 days.[8] Indicating how effective it can be to be well educated on the procedure beforehand. Marcinkowski, Wang, and Dignam write in their paper that Total Knee Joint Arthroscopy (TKJA) is not just a surgical procedure but also an emotional journey.[9] They write that patients need to undergo severe physical and mental changes to have a new lifestyle, adapting to their new physiological needs. In the paper they summarize the journey into three stages; Enduring - Patients demonstrate determination and stoicism during the lengthy wait for surgery and the arduous recuperation, Thinking Twice - They reevaluate their expectations, adjust to new realities, and learn to accept assistance, balancing independence and social support, Keeping Faith - Recovery is fuelled by a strong mindset, self-belief, and hope, even when outcomes or timelines deviate from expectations.[9] TKR for patients is a very personal and emotional journey rather than a medical event. It entails enduring extended periods of hardship, reconsidering independence and coping techniques, and believing in a brighter future. Recovery success depends on both physical and psychological resilience, social support, and realistic preparedness for the challenges ahead.[9] Although there are some commonalities in the recovery patterns of individuals, Macario and colleagues note that this does not always mean that all patients will recover in the same way. According to their research, there was a great deal of variation in the information demands of each patient having a complete hip or knee replacement, even though the majority of them had similar major concerns, such as the need for physical therapy, their capacity to take care of themselves, and their anticipated mobility following surgery. Standardised teaching might not be enough, as some patients indicated by adding their own queries. This variation implies that patient education should include a foundational set of pertinent data, supplemented by material specific to each patient's problems. Given that more patients have access to the internet, web-based platforms could be a useful means of disseminating evidence-based information that is both generic and individualised. However, even when there is no data, doctors must agree on concise, understandable responses to commonly asked questions for this to be successful.[10] Trousdale and his co-authors write that, apart from education, other factors also play a role in anxieties.[11] While most patients undergoing total hip or knee arthroplasty were not very worried, this study examined their concerns and found that postoperative pain, recovery time, walking ability, and return to activities were consistently ranked as the top concerns. Age, gender, kind of surgery, and hospital setting all showed significant disparities. While older patients placed greater priority on mobility and pain management, younger patients were more concerned with joint longevity and returning to leisure activities. While men were more concerned with lifting big objects, women were more interested in most categories, particularly with self-care and therapy. While knee patients concentrated on stair climbing, hip patients were more concerned with sexual function and dislocation.[11] It is interesting to note that tertiary centre patients were more nervous about their interactions with the surgeon and their expectations for recovery, and they also thought of themselves as less healthy. Many patients continued to worry about infections linked to transfusions despite safety improvements. All things considered, these results highlight the necessity of customised preoperative counselling that blends a core set of knowledge with patient-specific instruction. They may also serve as a roadmap for creating improved educational and communication resources.[11] In another study by Ballantyne and co, four main themes surfaced: earlier experiences with healthcare shaped attitudes; arthritis changed personal identity; social interactions influenced decisions; and arthritis was frequently evaluated in the context of other comorbidities. Some people dreaded surgery because of bad experiences in the past or a lack of support from their doctors, while others downplayed arthritis by considering it to be age-related or less serious than other illnesses. Family support frequently decreased the perceived need for surgery. To defend against avoidance, participants tended to rely on prior experiences rather than on expectations for the future. Social norms and physician communication also contributed. The study emphasises the intricacy of decision-making and the necessity of customised communication, patient-centered education, and more research contrasting willing and unwilling patients.[3] While much of the medical literature has focused on the clinical outcomes of TKA and the roles of surgeons and medical procedures, there is limited research on the patient perspective, particularly in resource-constrained settings such as Pakistan.[1] This study aims to address this gap by exploring the psychosocial and cultural factors influencing patients' experiences with TKA, focusing specifically on patients in Peshawar, Pakistan. The study seeks to understand why patients are often reluctant to undergo TKA, even though the procedure offers significant potential for pain relief and improved quality of life. Through semi-structured interviews and qualitative analysis, this research will capture the diverse psychosocial dynamics and structural challenges that influence patients' decisions before, during, and after surgery. By focusing on these patient

experiences, the study will provide valuable insights into how cultural and economic factors shape healthcare decisions in this context.

METHODOLOGY

This study employed a qualitative descriptive design to gain an in-depth understanding of patient experiences following total knee arthroplasty within a real-world, resource-constrained context. Participants were purposively recruited from both a public tertiary care hospital and a private healthcare facility in Peshawar to capture variation in socioeconomic status and healthcare access. A total of 31 patients who had undergone unilateral TKA within the previous 6 months were included, ensuring that participants had sufficient recall of their surgical journey while still engaged in recovery. Eligibility criteria included being over 40 years of age, mentally competent to participate in an interview, and fluent in either Urdu or Pashto, allowing participants to express their experiences in their preferred language. Data were collected through in-depth semi-structured interviews conducted by trained bilingual researchers. Interviews ranged from 45 to 120 minutes and were guided by an interview protocol that explored preoperative experiences of pain and decision-making, perceptions of hospital care, challenges during postoperative recovery, and the influence of cultural and financial factors. All interviews were audio-recorded with participant consent and transcribed verbatim. For illiterate participants, informed consent procedures were adapted by reading the consent form aloud, and verbal consent was documented in the presence of a witness, ensuring ethical inclusivity. Data analysis was conducted using Braun and Clarke's reflexive thematic analysis approach, which emphasizes iterative engagement with the data and the active role of the researcher in meaning-making[6]. Transcripts were repeatedly reviewed to achieve immersion, followed by inductive coding to identify patterns and recurring concepts. Codes were then organized into broader themes that captured the underlying structure of participants' experiences. NVivo software was utilized to facilitate data management and organization; however, the analytical process remained interpretive rather than mechanistic. Reflexivity was maintained throughout the analysis, with researchers documenting their assumptions and perspectives to minimize bias and enhance transparency. To ensure rigor, several strategies were employed. Member checking was conducted with a subset of participants to validate the accuracy of interpretations, leading to refinement of certain themes, particularly those related to postoperative recovery and family support. Peer debriefing sessions with qualitative research experts were also held to evaluate the analytical process and thematic structure critically. Ethical approval for the study was obtained from the relevant institutional review board, and all procedures adhered to principles of confidentiality, voluntary participation, and cultural sensitivity. Ethical approval was obtained from the Hayatabad Medical Complex Ethics Committee (App No. 2551-2, Dated: 24-12-2024). All participants were assured of their confidentiality, and interviews were conducted in accordance with cultural norms and gender sensitivities. Audio recordings and data files were securely stored and accessible only to the research team.

RESULTS

From the analysis of the semi-structured interviews, five themes emerged. These themes reflect the diverse and complex experiences of patients undergoing Total Knee Arthroplasty (TKA) and highlight the profound influence of psychological, cultural, social, and financial factors. The following results were derived from the thematic analysis of the data collected.

Theme 1: Preoperative Experiences - " A Prison of Pain and Fear"

Participants described their preoperative lives as being trapped in a relentless cycle of physical dysfunction and emotional distress. Many experienced profound functional impairment, making even basic activities, such as prayer and hygiene, monumental tasks.

Sub-theme: Physical Pain and Dependency

Nasreen, a 52-year-old patient from a public hospital, recalled:

*"I crawled to the bathroom f*or 3 years. Prayer? Impossible - *bending felt like walking on broken glass."*

This sense of loss and dependency was a recurring theme in the interviews, where the emotional toll compounded the physical limitations.

Sub-theme: Fear and Psychological Suffering

The psychological suffering was often tied to the fear of surgery, with many patients experiencing heightened anxiety as they imagined potential complications. Wali, a 71-year-old patient, spoke of the constant dread he lived with:

"I dreamt of paralysis and my sons selling land for my treatment - *I would rather die than burden them."*

Many participants delayed surgery for 5.3±2.1 years on average, often seeking non-medical alternatives such as consultations with traditional healers (hakeems) (55% of participants). This preference for indigenous healing methods reflects the region's cultural importance of traditional practices. The delay exacerbated both physical deterioration and psychological distress.

Theme 2: Hospital Stay - "Human Kindness in Scarcity"

Despite resource constraints in public hospitals, many participants shared stories of profound compassion from healthcare workers that helped them cope during their hospital stay.

Sub-theme: Compassion Amid Scarcity

Gul, a 63-year-old patient, recalled a moment of vulnerability and kindness:

"Sister Aisha, despite being petite herself, used all of her force to support me when I fell."

This sense of solidarity and human connection stood out as a significant emotional support for patients during an otherwise difficult time.

Sub-theme: Systemic Challenges and Resilience

While participants in public hospitals noted overcrowding, insufficient mobility aids, and understaffing, many reframed these challenges in light of the support they received from healthcare staff. This theme encapsulates the balance between institutional scarcity and individual compassion that shaped the hospital experience in Peshawar.

Table 1: Hospital Resource Comparison

Resource	Public	Private
Nurse-patient ratio	1:18	1:4
Days to physiotherapy	5.2±2.3	1.1±0.4
Pain control adequate	37%	68%

Theme 3: Postoperative Recovery - "Abandoned After Surgery"

While the surgery itself was seen as successful by most participants, many reported feeling abandoned during the postoperative recovery phase, primarily due to a lack of standardized physiotherapy.

Sub-theme: Disparity in Rehabilitation Access

Yousuf, a 70-year-old public hospital patient, shared his frustration:

"No therapist visited. My son had to request many times before someone actually showed up."

This disparity in access to rehabilitation created a divide between those who received structured follow-up and those who had to manage their recovery independently, often relying on family members for support.

Sub-theme: Family Support and Self-reliance

Due to gaps in institutional support, 87% of participants reported relying solely on family members for assistance with postoperative exercises. While family support was invaluable, it could not replace professional rehabilitation, leaving patients feeling abandoned during this critical phase of recovery.

Sub-theme: Flexion Contractures

Eleven patients in public hospitals developed flexion contractures greater than 15°, a condition that significantly delayed their functional recovery. This was a self-reported finding based on participant accounts, as clinical records were not accessed for verification.

Theme 4: Cul**tural and Financial Influences -** "Chains of Duty and Debt"

Cultural expectations and financial constraints were significant factors shaping both the decision to undergo surgery and the recovery process.

Sub-theme: Gendered Cultural Expectations

Female participants reported intense pressure to resume their domestic duties as soon as possible, often despite medical advice to rest. Zarqa, a 48-year-old homemaker, recalled:

"By day 12, I was cooking for my family of 15. My mother-in-law said, 'A woman's worth is in her work.'"

Sub-theme: Financial Strain of Surgery

Many participants also highlighted the financial burden of surgery, with 79% reporting that the cost of the surgery, rehabilitation, and time off work consumed over 40% of their total household income. Sher, a 76-year-old patient, poignantly shared:

"We sold our only cow. Now my grandchildren drink tea without milk."

Financial strain, particularly in lower-income families, was a persistent theme that added stress during both the preoperative and postoperative phases.

Sub-theme: Financial Obligations of Men

Men in the region, particularly in rural areas, felt a heightened sense of responsibility to return to work quickly to support their families, even at the expense of their health. One farmer stated: *"Men are expected to keep working even at an old age. I cannot let them (the whole family) down."* The financial strain of the procedure further exacerbated this pressure to regain mobility quickly.

Table 2: Qualitative Synthesis

Preoperative	Postoperative
"Will I die under anesthesia?"	"When can I kneel in prayer?"
"Can homeopathic medicine avoid surgery?"	"Can I use a squatting toilet?"

Theme 5: Reflections - "Pain Was Hell, But I would Do It Again."

Despite the profound challenges they faced - ranging from years of preoperative suffering to difficult postoperative recovery - many participants expressed a deep sense of gratitude and transformation following their TKA.

Sub-theme: Transformation and Relief

Parveen, a 61-year-old patient, shared:

"I could walk pain-free after 10 years, it almost felt surreal."

For many, regaining mobility and independence restored not only their physical well-being but also their mental and emotional health.

Sub-theme: Endorsement for Early Intervention

Many participants advocated for early intervention, advising others not to delay surgery out of fear or financial hesitation. These recommendations served as

a powerful endorsement of TKA.

Table 2: Qualitative Synthesis

Theme	Sub-theme	Example Quote
Preoperative Pain/Fears	Pain and Anxiety Before Surgery	"I was in constant pain, and the thought of surgery made me terrified."
Hospitalization Experiences	Staff Support During Stay	"The nurses were kind, but the lack of equipment was frustrating."
Rehabilitation Challenges	Difficulty Accessing Therapy	"I could not get physiotherapy regularly, which delayed my recovery."
Cultural/Financial Impacts	Financial Burden of Surgery	"I had to sell our livestock to afford the surgery and rehab."
Reflections on Surgery	Post-surgery Transformation	"I could walk pain-free after 10 years; it almost felt surreal."

DISCUSSION

The present study provides a comprehensive exploration of patient experiences following total knee arthroplasty (TKA) in a resource-constrained, culturally embedded context, highlighting that surgical outcomes are shaped not only by clinical factors but also by psychological, sociocultural, and structural determinants. The findings demonstrate that prolonged preoperative suffering, inequities in postoperative care, and culturally mediated expectations collectively define the patient journey, reinforcing and extending existing literature. A key finding of this study is the significant delay in surgical decision-making, with patients enduring severe pain for prolonged periods prior to undergoing TKA. This observation aligns with the conceptual framework proposed by Jacobson et al., who described a phase of prolonged tolerance and postponement of surgery.[2] Similar patterns have been reported by Hawker et al. and Ackerman et al., who identified that willingness to undergo joint replacement is strongly influenced by perceived need, expectations, and social context.[12,13] The reliance on traditional healers observed in this study further supports the findings of Ibrahim et al., who demonstrated that cultural beliefs and misconceptions significantly delay surgical uptake across diverse populations.[14] From a behavioral perspective, these findings are consistent with the Health Belief Model, wherein perceived barriers, particularly fear and financial cost, outweigh perceived benefits. Psychological distress was another dominant theme, with patients reporting fear of paralysis, dependency, and financial burden. These findings are consistent with prior evidence indicating that anxiety and emotional distress are prevalent among patients awaiting joint replacement and can negatively impact postoperative recovery.[15] McDonald et al. further demonstrated that structured preoperative education significantly reduces anxiety and improves recovery outcomes.[8] Importantly, this study extends these findings by situating psychological distress within a broader socioeconomic context, where fear is compounded by financial vulnerability and familial responsibility, an aspect that is less emphasized in high-income settings. The hospital experience described by participants reflects a critical interplay between systemic constraints and interpersonal care. Despite limited resources, patients consistently valued empathy and support from healthcare providers. This finding aligns with research by Doyle et al., which established that patient experience is strongly associated with clinical effectiveness and safety outcomes.[16] In low-resource settings, where infrastructural limitations are common, the relational dimension of care becomes even more significant, often compensating for systemic deficiencies. One of the most significant contributions of this study is the identification of disparities in postoperative rehabilitation. Delayed or absent physiotherapy in public sector settings resulted in increased dependency on family members and suboptimal recovery outcomes. These findings are consistent with those of Artz et al., who emphasized the importance of structured physiotherapy in improving functional outcomes following TKA.[17] Similarly, Minns Lowe et al. demonstrated that early and supervised rehabilitation significantly enhances mobility and reduces complications.[18] The present study adds to this body of evidence by highlighting how inequitable access to rehabilitation services creates a form of ―rehabilitation disparity,‖ particularly in low-resource healthcare systems. Cultural and gender dynamics played a crucial role in shaping patient experiences. Female participants reported early resumption of domestic responsibilities, often at the expense of recovery, while male participants faced pressure to return to work. These findings are consistent with broader literature on gender disparities in healthcare, where social roles influence both access to care and recovery trajectories.[12,14] Ibrahim et al. also reported significant racial and gender disparities in TKA utilization, emphasizing that sociocultural factors are critical determinants of surgical outcomes.[14] The present study extends this understanding by demonstrating how these norms directly interfere with adherence to postoperative rehabilitation protocols. The financial burden emerged as a pervasive theme, with the majority of participants experiencing catastrophic health expenditures. This finding is consistent with global evidence on out-of-pocket healthcare spending in low- and middle-income countries.[5] Xu et al.

highlighted that catastrophic health expenditure can push households into poverty, particularly in the absence of financial protection mechanisms.[19] In the context of TKA, this financial strain influences not only access to surgery but also postoperative recovery, as patients may forgo rehabilitation due to cost constraints. This underscores the concept of "financial toxicity," which is increasingly recognized as a critical determinant of health outcomes in surgical care. Despite these challenges, patients reported profound improvements in mobility and quality of life following TKA. These findings are consistent with large-scale studies demonstrating high satisfaction rates and functional gains after TKA.[1,12] Importantly, participants' retrospective endorsement of surgery suggests a shift in risk perception following successful outcomes, a phenomenon also described by Hawker et al.[12] This highlights the importance of patient education and expectation management in bridging the gap between preoperative fear and postoperative reality. Collectively, these findings support a biopsychosocial and health systems perspective on TKA, emphasizing that surgical success depends on addressing not only clinical factors but also structural inequities and sociocultural determinants. The concept of rehabilitation inequity identified in this study is particularly critical, underscoring the need for equitable access to postoperative care. Addressing these challenges requires integrated interventions, including culturally tailored patient education, expanded rehabilitation services, and the implementation of financial protection policies. This study makes a significant contribution by situating TKA within a broader social and systemic framework, thereby advancing the discourse from procedural success to equity in surgical care delivery.

LIMITATIONS

While this study provides valuable insights into patient experiences following TKR in Peshawar, certain limitations must be acknowledged. First, the research was confined to a single city, which may limit the generalizability of findings to other regions of Pakistan with different healthcare infrastructures or cultural dynamics. Moreover, the sample was restricted to Pashto- and Urdu-speaking patients. The perspectives of orthopedic surgeons and rehabilitation professionals were not captured. Including these voices could have enriched the analysis by offering a multidimensional perspective on the challenges and strategies along the surgical care pathway. Future studies should aim to incorporate a broader geographic scope and a more diverse set of stakeholders.

CONCLUSIONS

Total knee arthroplasty in Peshawar is not merely a clinical intervention but a deeply contextualized experience shaped by sociocultural expectations, economic realities, and health system constraints. While the procedure offers substantial benefits, these are mediated by disparities in access to care and rehabilitation. Addressing these challenges requires a comprehensive, patient-centered approach that integrates clinical excellence with cultural sensitivity and systemic reform.

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AUTHORS CONTRIBUTION

Muhammad Waqar - *Concept & Design; Data Acquisition; Drafting Manuscript; Final Approval*
Samir Khan Kabir - *Concept & Design; Data Acquisition; Drafting Manuscript; Final Approval*
Muhammad Arif - *Concept & Design; Data Acquisition; Drafting Manuscript; Critical Revision; Final Approval*
Wasim Anwar - *Concept & Design; Data Acquisition; Drafting Manuscript; Supervision; Final Approval*

The authors accept responsibility for all aspects of the work and will ensure that any concerns regarding the accuracy or integrity of any part are properly investigated and resolved.