



Exploring emotional, psychological, and relational experiences of patients undergoing microsurgical varicocelectomy in Jordan; a qualitative study

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Abstract

Introduction: Microsurgical varicocelectomy is a widely performed procedure to treat varicocele, a condition impacting male fertility and well-being, yet its emotional and psychological outcomes remain underexplored.

Objectives: This study aimed to explore the emotional, psychological, and relational experiences of Jordanian patients undergoing microsurgical varicocelectomy.

Patients and Methods: A qualitative descriptive design was utilized to examine the subjective experiences of 18 patients who underwent microsurgical varicocelectomy in Jordan within the past year. Participants were recruited from two private hospitals and four clinics using purposive sampling. Data were collected through semi-structured interviews guided by a culturally tailored protocol addressing emotional, psychological, and relational dimensions of recovery. Interviews were conducted face-to-face in private settings, audio-recorded, and transcribed verbatim. Data were analyzed using Braun and Clarke's six-step thematic analysis framework, ensuring a rigorous and systematic approach. Themes were reviewed and validated to ensure credibility and reflect participants' experiences accurately.

Results: The analysis revealed six key themes. Emotional and psychological impact included pre-surgical distress (14 participants), post-surgical relief (12 participants), and persistent anxieties (8 participants). Sexual function and outcomes showed significant improvements (16 participants), however some reported mixed recovery experiences (13 participants) and unmet expectations (11 participants). Partner and relationship dynamics highlighted the critical role of partners, with improved communication (9 participants) and partner support (8 participants) enhancing recovery. The recovery process involved pain and discomfort during the early stages (15 participants), gradual progress (14 participants), and occasional complications (7 participants). Education and support needs revealed gaps in pre-surgical counseling (11 participants) and a desire for peer support (8 participants). Perceived quality of life included holistic improvements beyond sexual function (13 participants) and also lingering barriers to full satisfaction (9 participants). The findings highlight recovery challenges alongside transformative physical and emotional benefits.

Conclusion: The study emphasizes the need for culturally sensitive, patient-centered care that addresses emotional, psychological, and relational aspects of recovery, with a focus on improving pre-surgical counseling, follow-up care, and peer support programs in Jordanian healthcare settings.



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Introduction

Microsurgical varicocelectomy is a surgical procedure performed to treat varicocele, a condition where the veins in the scrotum become enlarged due to improper blood flow. Varicoceles are a common cause of male infertility, affecting approximately 15% of men, and are often associated with testicular discomfort, scrotal pain, and impaired sperm production (1,2). The procedure aims to improve fertility, alleviate symptoms, and prevent further testicular damage by surgically correcting the venous dilation (1,3).

Varicocele is characterized by abnormal enlargement of the pampiniform venous plexus in the scrotum, typically caused by defective valves in the veins (3,4). This leads to blood pooling and increased scrotal temperature, negatively impacting sperm quality and testicular function. Common symptoms include a dull, aching pain in the scrotum, heaviness, and visible or palpable veins resembling a "bag of worms." In severe cases, varicocele can cause testicular atrophy, further complicating reproductive health (5,6).

Key point

- Patients experienced significant emotional distress before surgery, driven by concerns about masculinity, fertility, and relationship strain. Post-surgery, many reported relief and increased confidence, however lingering anxieties about recovery and long-term success remained for some.
- Most participants noted improvements in sexual performance post-surgery, but recovery timelines varied. Though some saw rapid progress, others experienced mixed outcomes, unmet expectations, or slow recovery, highlighting the need for realistic pre-surgical counseling.
- Partner support played a crucial role in recovery, fostering emotional well-being and improving relationship dynamics. Improved communication and stronger partner engagement contributed to a more positive post-surgical experience.
- Pain and discomfort were common in the early recovery period, with noticeable improvements typically occurring around three months post-surgery. Some patients faced complications such as prolonged swelling, reinforcing the importance of structured follow-up care.
- Patients expressed a need for better pre-surgical counseling and peer support opportunities. Beyond sexual function, many reported overall improvements in well-being, but some experienced residual concerns, emphasizing the need for ongoing post-operative guidance.

Treatment for varicocele varies depending on its severity and the presence of symptoms. Microsurgical varicocelectomy is the gold standard due to its high success rate, minimal invasiveness, and low complication rates (3,5). Alternative treatments include laparoscopic varicocelectomy, percutaneous embolization, and open surgical approaches, though these are generally associated with higher recurrence and complication rates. In cases where symptoms are mild or fertility is not a concern, conservative management such as pain relief and regular monitoring may suffice (5,7).

Though microsurgical varicocelectomy is highly effective, it carries risks of complications, including scrotal swelling, hematoma, hydrocele formation, and, in rare cases, varicocele recurrence (7,8). Post-surgical pain is common in the initial recovery period, and some patients may experience delayed improvements in symptoms or fertility. Ensuring careful surgical technique and appropriate follow-up can help mitigate these risks and optimize outcomes (9,10).

Patients undergoing microsurgical varicocelectomy often report significant improvements in symptoms and overall well-being, particularly in fertility and sexual function. However, the experience is not uniform, with some patients facing prolonged recovery, persistent symptoms, or unmet expectations (11,12). Emotional and psychological challenges, such as anxiety about fertility outcomes or concerns about recurrence, are common, emphasizing the need for comprehensive patient support throughout the treatment process (12,13).

Understanding patient experiences and the impact of microsurgical varicocelectomy on sexual function is essential for delivering holistic care (14,15). Since the

procedure aims to address physical symptoms, its success also depends on its ability to improve emotional well-being, confidence, and relational dynamics. Identifying these subjective outcomes allows healthcare providers to better meet patient needs, enhance recovery, and support long-term satisfaction (16).

Existing research predominantly focuses on the clinical outcomes of microsurgical varicocelectomy, such as semen quality, fertility rates, and surgical success. There is limited exploration of patient-reported outcomes, including emotional, psychological, and relational experiences (1-8). Additionally, the impact of cultural factors and the role of partner dynamics in recovery have received little attention, leaving significant gaps in understanding the holistic effects of the procedure.

In Jordan, research on varicocele and microsurgical varicocelectomy primarily addresses surgical efficacy and fertility outcomes, neglecting the subjective experiences of patients. The emotional and psychological dimensions of recovery, the influence of cultural attitudes toward masculinity and fertility, and the impact on sexual function remain unexplored. This gap limits the ability of healthcare providers to address patient needs comprehensively and tailor care to the Jordanian cultural context.

Objectives

This study aims to explore the emotional, psychological, and relational experiences of Jordanian patients who have undergone microsurgical varicocelectomy. By addressing gaps in the literature and focusing on patient-reported outcomes, including sexual function and recovery challenges, the research seeks to provide insights into improving patient care and promoting holistic recovery in similar settings.

Patients and Methods**Study setting**

This study was conducted in Jordan at two private hospitals and four private clinics, selected based on their reputation for performing microsurgical varicocelectomy and offering specialized surgical and follow-up care. These settings, located in urban areas such as Amman and Irbid, provided access to a diverse patient population with varying socio-economic backgrounds. The inclusion of multiple facilities ensured a comprehensive understanding of patient experiences across different healthcare environments.

Study design

A qualitative descriptive design was utilized to explore the emotional, psychological, and relational dynamics associated with microsurgical varicocelectomy. This approach allowed for an in-depth examination of participants' subjective experiences, focusing on their journey before, during, and after the procedure.

Sample

A purposive sampling strategy was employed to recruit participants who had undergone microsurgical varicocelectomy within the past year. A total of 18 participants were included, reflecting a diverse range of ages, marital statuses, and recovery experiences.

Participants for the study were selected based on specific eligibility criteria to ensure the relevance of their experiences to the research objectives. Adults aged 18 years or older who had undergone microsurgical varicocelectomy within the past 12 months were invited to participate. Eligible participants were required to be mentally competent and capable of communicating in Arabic or English to share detailed and meaningful responses. Additionally, they had to provide informed consent, expressing their willingness to share their personal experiences related to the surgery and recovery process. The study aimed to capture a comprehensive range of perspectives while ensuring participants were representative of the target population in Jordan.

Individuals who underwent other surgical interventions alongside varicocelectomy or were still recovering from major complications were excluded to avoid confounding variables. Patients with pre-existing psychological conditions unrelated to their varicocele diagnosis were also excluded to focus on surgery-specific emotional and psychological outcomes. Participants unwilling to share personal information, decline audio recording, or withdraw consent were also excluded. These criteria ensured a focused sample of participants who could provide valuable insights into the emotional, psychological, and relational dynamics associated with microsurgical varicocelectomy in a culturally and contextually relevant setting.

Instruments

Data were collected using semi-structured interviews guided by an interview protocol tailored to the Jordanian context. The protocol included open-ended questions designed to explore;

1. Emotional and psychological impacts pre- and post-surgery.
2. Recovery experiences and challenges.
3. The role of partners and relationships in recovery.
4. Perceived improvements in sexual function and quality of life.
5. Educational and support needs.

The interview guide was pilot-tested with three patients to ensure cultural relevance and clarity.

Data collection

Participants were recruited from the selected hospitals and clinics through referrals from healthcare providers.

Face-to-face interviews were conducted in private rooms within the hospitals and clinics to maintain confidentiality and comfort. Each interview lasted between 30 and 45 minutes and was audio-recorded with participants'

consent. Additional field notes were taken to capture non-verbal cues and contextual observations.

Statistical analysis

Descriptive statistics were used to summarize participant characteristics, including age, marital status, and time since surgery, with mean, standard deviation, and range calculated where applicable. Frequency analysis was conducted to determine the number and percentage of participants reporting specific themes, such as emotional distress, post-surgical relief, and changes in sexual function. Thematic analysis followed Braun and Clarke's six-step framework, involving data familiarization, initial coding, theme identification, review, definition, and final reporting. To ensure rigor, themes were validated through inter-coder reliability checks, and exemplary quotes were selected to support key findings.

Results

The results include themes that are emotional and psychological impact, sexual function and outcomes, partner and relationship dynamics, recovery process, education and support needs, and perceived quality of life. These themes highlight the emotional, relational, and recovery experiences of participants, emphasizing both challenges and improvements after microsurgical varicocelectomy.

Emotional and psychological impact

The emotional and psychological journey of patients undergoing microsurgical varicocelectomy reflects profound changes, as illustrated in [Table 1](#), which summarizes three key subthemes: emotional distress pre-surgery, hope and relief post-surgery, and persistent anxieties.

Fourteen participants shared how their condition deeply affected their emotional well-being, leading to feelings of inadequacy, diminished masculinity, and strained relationships. One participant described how the constant worry about fertility issues consumed their thoughts and prevented them from focusing on other aspects of life. Another noted how they avoided intimate situations entirely because of the fear of disappointing their partner, which led to emotional isolation and frustration. Some participants expressed feelings of shame and embarrassment, with one stating that they felt their condition made them "less capable of fulfilling their role" in their personal relationships. These accounts illustrate the heavy psychological toll the condition took on their lives.

After the surgery, 12 participants reported experiencing significant emotional relief and a renewed sense of confidence. One explained that they finally felt hopeful about their future and less embarrassed in their interactions, particularly in their intimate relationship. Another participant highlighted how the procedure

Table 1. Emotional and psychological impact – subthemes, numbers, and quotes

Subtheme	Reported numbers	Exemplary quote
Emotional distress pre-surgery	14	"I felt less of a man knowing my condition might be affecting my performance and fertility. It was emotionally draining, and I avoided intimate situations because of the fear of disappointment." (Participant 3, Male, 35)
Hope and relief post-surgery	12	"For the first time in years, I felt hopeful and confident in my relationship. I wasn't embarrassed anymore and felt like I could focus on the future again." (Participant 4, Male, 34)
Persistent anxieties	8	"Even though there were improvements, I still had this lingering fear of things not being fully resolved. What if this wasn't enough to fix the problem?" (Participant 8, Male, 42)

restored their ability to engage in personal and professional activities without constant self-doubt. Several shared that they felt a new sense of optimism and a deeper connection with their partners, as the emotional strain tied to their condition had been alleviated. These experiences demonstrate the transformative potential of the surgery, not only in addressing physical concerns but also in fostering emotional recovery.

Despite the overall positive outcomes, eight participants expressed lingering fears and doubts about the long-term effectiveness of the surgery. One participant worried about whether the procedure had truly resolved their condition, noting that occasional symptoms made them anxious about potential recurrence. Another shared that they still felt uncertain about whether they could fully trust their body to function as expected, despite visible improvements. Some participants emphasized the need for reassurance during follow-up care, with one explaining how a lack of clarity about the recovery process contributed to their ongoing fears. These accounts highlight the importance of comprehensive post-surgical support to address both physical and emotional uncertainties.

Sexual function and outcomes

Table 2 highlights the impact of microsurgical varicocelectomy on sexual function and outcomes. The findings are categorized into three subthemes: improvements in sexual performance, mixed recovery experiences, and disparity between expectations and outcomes. These reflect the varied trajectories of participants' experiences, emphasizing both the benefits and challenges of recovery.

Sixteen participants described noticeable improvements in their sexual function following surgery. One participant shared that their energy and confidence in intimate situations returned within a few months, leading to a renewed sense of self-assurance and satisfaction in their

personal life. Another highlighted that the improvements extended beyond sexual performance, enhancing their overall physical and emotional well-being. For some, the changes were almost immediate, with one participant expressing that they felt like a burden had been lifted, allowing them to fully engage in relationships again. These experiences underscore the surgery's potential to significantly improve not just physical outcomes but also the quality of intimate relationships and self-esteem.

Thirteen participants reported varied recovery experiences, with some noticing gradual improvements over time. One participant explained that while progress was slower than expected, they began seeing meaningful changes around the six-month mark, leading to a sense of relief and accomplishment. Another participant shared that their journey was marked by ups and downs, with periods of improvement followed by temporary setbacks, which tested their patience and resolve. A few mentioned how their initial doubts about the surgery's effectiveness eventually gave way to satisfaction as they observed consistent progress. These mixed experiences highlight the individual variability in recovery trajectories and the importance of managing expectations during the post-operative phase.

Eleven participants expressed a gap between their expectations and actual outcomes, particularly regarding the timeline for recovery. One participant mentioned that they initially believed everything would return to normal immediately after surgery but found the process to be more gradual, leading to moments of frustration. Another shared that while they were ultimately satisfied with the improvements, the delay in achieving their desired results caused emotional and mental strain. Some participants also noted that their expectations had been shaped by overly optimistic accounts from peers or a lack of detailed pre-surgical counseling, which made the slower progress feel discouraging. These reflections underscore the need

Table 2. Sexual function and outcomes– subthemes, numbers, and quotes

Subtheme	Reported numbers	Exemplary quote
Improvements in sexual performance	16	"It was like a switch flipped—I started noticing changes within a couple of months. My energy returned, and my confidence in intimate moments improved significantly." (Participant 2, Male, 32)
Mixed recovery experiences	13	"For me, the progress was slower. I wasn't sure if it was working at first, but around the six-month mark, I started to see real improvements in how I felt and performed." (Participant 9, Male, 45)
Disparity between expectations and outcomes	11	"I expected everything to go back to normal immediately, but it took longer than I thought. There were moments of frustration, but eventually, things started to improve." (Participant 6, Male, 38)

for clear communication about realistic recovery timelines and potential challenges.

Partner and relationship dynamics

Table 3 examines how microsurgical varicocelectomy influences partner dynamics and relationship quality. The findings are grouped into three subthemes: partner's perspective, improved communication, and partner support during recovery. These insights highlight the critical role of partners in the emotional and relational journey of recovery.

Ten participants shared how their partners perceived noticeable positive changes in their demeanor and engagement post-surgery. One participant mentioned that their partner observed a significant improvement in their happiness and energy levels, which strengthened their relationship. Another shared that the procedure helped them reconnect with their partner on a deeper emotional level, as the strain caused by their condition had been alleviated. Partners frequently expressed relief and satisfaction at seeing their loved one regain confidence and vitality, emphasizing how the surgery benefited not just the individual but the couple as a whole.

Nine participants highlighted that the experience of undergoing surgery and recovery led to enhanced communication with their partners. For some, this openness was a new and transformative aspect of their relationship. One participant described how discussing their feelings and fears openly for the first time created a sense of mutual understanding and closeness. Another noted that this improved communication extended beyond health-related topics, positively influencing other aspects of their relationship. These experiences underscore how the surgery served as a catalyst for deeper, more meaningful interactions between partners.

Eight participants emphasized the crucial role their partners played during the recovery period. One participant

shared that having their partner's encouragement and patience made the challenging phases of recovery more manageable. Another described how their partner's active involvement, from attending medical appointments to providing emotional support at home, was instrumental in maintaining their motivation and optimism. These accounts highlight the importance of strong partner support, which not only aids recovery but also reinforces the bond between the individual and their partner.

Recovery process

Table 4 highlights key aspects of the recovery process following microsurgical varicocelectomy, categorized into three subthemes: pain and discomfort during recovery, timeline for improvement, and surgical complications. These themes reflect the physical and emotional challenges patients experience during the recovery phase, as well as their resilience and adaptability.

Fifteen participants described experiencing significant pain and discomfort in the initial weeks following surgery. Many emphasized that while they were prepared for some discomfort, the intensity and persistence of the pain were challenging. One participant recalled thinking, "Will this pain ever go away?" during the early weeks of recovery, though they were reassured when the pain gradually subsided. Another participant shared how they relied on consistent communication with their healthcare provider for reassurance and guidance, which helped them navigate this difficult phase. These accounts underline the importance of managing pain effectively and providing patients with clear expectations and support during recovery.

Fourteen participants noted that noticeable improvements often took longer than expected, with most reporting significant progress around the three-month mark. One participant explained that while they were initially concerned about the slow progress, they

Table 3. Partner and relationship dynamics— subthemes, numbers, and quotes

Subtheme	Reported numbers	Exemplary quote
Partner's perspective	10	"My partner noticed I was happier and more engaged—our relationship improved too. She said it felt like we were reconnecting on a deeper level." (Participant 10, Female, 37)
Improved communication	9	"We started talking openly about our feelings and it brought us closer together. For the first time, I felt like she truly understood what I was going through." (Participant 12, Female, 30)
Partner support during recovery	8	"Having her by my side during recovery made all the difference. She was patient and encouraging, which helped me stay positive." (Participant 11, Male, 41)

Table 4. Recovery process— subthemes, numbers, and quotes

Subtheme	Reported numbers	Exemplary quote
Pain and discomfort during recovery	15	"The first few weeks were tough, but the doctor said it was normal. I remember thinking, 'Will this pain ever go away?' but over time, it did." (Participant 1, Male, 29)
Timeline for improvement	14	"I didn't see any major changes until three months post-surgery. It was slow progress, but I was just relieved that things were finally heading in the right direction." (Participant 13, Male, 47)
Surgical complications	7	"I experienced swelling longer than expected, which worried me. The follow-up appointments reassured me, but it was still a stressful experience." (Participant 15, Male, 36)

were ultimately relieved to see steady improvements over time. Another shared that the gradual nature of recovery required patience and a positive mindset, emphasizing how crucial it was to celebrate small milestones along the way. These reflections highlight the variability in recovery timelines and the need to prepare patients for a gradual return to normalcy.

Seven participants reported experiencing complications during recovery, such as prolonged swelling or discomfort beyond what they had anticipated. One participant described how the unexpected swelling caused stress and anxiety until follow-up appointments confirmed it was a normal part of the healing process. Another participant emphasized the emotional toll of complications, noting that even minor setbacks could create significant worry about the surgery's long-term success. These experiences underscore the importance of proactive follow-up care and clear communication about potential complications to alleviate patient concerns.

Education and support needs and perceived quality of life

Table 5 explores the education and support needs of patients undergoing microsurgical varicocelelectomy, as well as the perceived impact on their quality of life. The findings are divided into two themes—education and support needs and perceived quality of life—with subthemes that illustrate patients' perspectives on pre-surgical preparation, post-surgical recovery, and their overall well-being.

Eleven participants shared that while they were generally satisfied with the explanations provided by their surgeons, there were gaps in information, particularly regarding recovery expectations. One participant noted that while the surgeon explained the procedure well, they wished for more clarity on what recovery would feel like and how long it would take to see results. Another expressed the need for detailed guidance on managing pain and discomfort during the early weeks of recovery. These reflections emphasize the importance of thorough pre-surgical counseling to better prepare patients for the physical and emotional aspects of recovery.

Eight participants expressed a strong desire to connect with others who had undergone the same procedure. One

participant stated that hearing from others with similar experiences would have been reassuring and made the recovery feel less isolating. Another suggested that access to a peer support group or patient testimonials could have provided valuable insights into the recovery journey. These accounts highlight the potential value of peer support programs to complement professional care.

Thirteen participants reported significant improvements in their overall health and energy levels after surgery, beyond just sexual function. One participant described the experience as receiving a "new lease on life," feeling healthier and more capable in both personal and professional spheres. Another shared that the surgery's impact extended to emotional well-being, as they felt more optimistic and confident in their daily activities. These accounts underscore the broader benefits of the procedure, contributing to enhanced overall quality of life.

Despite positive outcomes, nine participants mentioned lingering concerns or areas for improvement. One participant reflected that while they were grateful for the progress they had made, they felt there was still room for further recovery and improvement in certain aspects. Another noted that minor complications or slower-than-expected recovery timelines tempered their overall satisfaction. These insights reveal the importance of ongoing follow-up care and realistic expectations to help patients achieve greater satisfaction with their outcomes.

Discussion

This study provides a comprehensive exploration of the emotional, psychological, and relational experiences of Jordanian patients who underwent microsurgical varicocelelectomy. The findings reveal the profound impact of this procedure on patients' well-being, highlighting both the benefits and challenges of recovery. These insights contribute to the global understanding of patient-centered care in microsurgical varicocelelectomy while addressing significant gaps in the Jordanian healthcare context. The discussion reflects on these findings, compares them to existing literature, and identifies areas for improvement (7,8).

The emotional distress reported by patients prior to surgery, including feelings of inadequacy, diminished

Table 5. Education and support needs and perceived quality of life – subthemes, numbers, and quotes

Theme	Subtheme	Reported numbers	Exemplary quote
Education and Support needs	Satisfaction with pre-surgical counseling	11	"The surgeon explained the process well, but I wish I had more information about what recovery would feel like and how long it would actually take to see results." (Participant 14, Male, 39)
	Desire for peer support	8	"It would have been great to hear from others who went through the same procedure. Knowing you're not alone can make a big difference during recovery." (Participant 16, Male, 42)
Perceived quality of life	Holistic improvement beyond sexual function	13	"I feel healthier and more energetic overall—not just sexually. It's like this surgery gave me a new lease on life." (Participant 18, Male, 48)
	Remaining barriers to full satisfaction	9	"I still feel there's room for improvement, but it's a big step forward. I'm grateful for the progress I've made so far." (Participant 5, Male, 28)

masculinity, and relationship strain, mirrors findings in global literature emphasizing the psychological toll of varicocele. Similar to studies conducted in Western and Asian contexts, participants described pre-surgical anxiety rooted in concerns about fertility, sexual function, and societal perceptions of masculinity. In Jordan, cultural factors surrounding fertility and family roles may amplify these emotional burdens, as male infertility carries a significant stigma (9,10).

Post-surgical relief and renewed confidence, reported by most participants, align with studies showing that successful varicocelectomy can significantly enhance emotional well-being. However, the persistent anxieties noted by some participants underscore a gap in pre- and post-operative support, particularly in addressing fears of recurrence and uncertainties about long-term outcomes. This finding suggests that psychological counseling and clear communication about recovery trajectories should be integrated into patient care. In the Jordanian context, where health literacy levels vary, culturally sensitive educational materials may help alleviate these anxieties and foster greater emotional resilience (9,11).

The improvement in sexual function reported by most participants reaffirms the established clinical efficacy of microsurgical varicocelectomy. Participants described increased confidence, energy, and satisfaction in their intimate relationships, reflecting the broader benefits of enhanced sexual health. These findings are consistent with studies indicating that varicocelectomy positively impacts sexual performance, sperm parameters, and overall reproductive health (12,13).

However, the mixed recovery experiences and disparity between expectations and outcomes reported by some participants highlight the variability in post-operative experiences. These discrepancies are often rooted in unrealistic pre-surgical expectations, as also noted in other studies. In Jordan, limited pre-surgical counseling and societal taboos surrounding discussions of sexual health may contribute to these unmet expectations. Addressing this gap requires a structured approach to patient education, with a focus on setting realistic goals and timelines for recovery (14,16).

The role of partners in the recovery process emerged as a critical theme, with many participants attributing their emotional and relational improvements to their partners' support. Enhanced communication and emotional closeness, as reported by participants, align with studies showing that strong partner involvement can facilitate better surgical outcomes and faster recovery. Globally, the role of partner dynamics in post-operative recovery is often underemphasized, making this finding particularly significant (12,13).

In Jordan, cultural values emphasizing family unity and spousal roles further amplify the importance of involving partners in the recovery process. Participants shared that open communication and shared recovery experiences

deepened their relationships, reflecting the unique interplay of cultural and relational factors in Jordanian society. However, the lack of formal support systems for partners highlights a gap in care. Developing partner-inclusive counseling and educational programs could strengthen relational dynamics and improve recovery outcomes (14,15).

Participants' accounts of pain and discomfort during the initial recovery period align with existing literature, which identifies these symptoms as common but temporary challenges. Many participants described relying on consistent communication with healthcare providers for reassurance, underscoring the importance of accessible follow-up care. However, the variability in recovery timelines, with significant improvements often taking months, highlights the need to prepare patients for a gradual return to normalcy (7,11).

Surgical complications, though reported by fewer participants, were a source of significant emotional distress. Prolonged swelling and unexpected symptoms contributed to patient anxieties, particularly when follow-up care was delayed or insufficient. In Jordan, where healthcare access may be uneven, these findings underscore the importance of proactive post-operative care and patient education to mitigate complications and enhance recovery confidence (3,7).

The study revealed gaps in pre-surgical counseling, with participants expressing a need for clearer information about recovery expectations, potential complications, and timelines. These findings are consistent with global research emphasizing the importance of thorough patient education. However, in Jordan, cultural sensitivities and variable health literacy levels may hinder open discussions about sexual health and recovery, exacerbating these gaps. Developing culturally tailored educational materials and standardized counseling protocols could address these challenges (9,11).

The desire for peer support, as expressed by several participants, highlights the emotional isolation some patients experience during recovery. Peer support programs, including patient testimonials and forums, could provide valuable reassurance and practical advice. While such programs are common in some healthcare systems, they are notably absent in Jordan, representing a missed opportunity to enhance patient care and emotional well-being (11,12).

Most participants reported holistic improvements in quality of life, extending beyond sexual function to include increased energy levels, emotional well-being, and confidence. These findings align with global studies demonstrating the broader benefits of successful varicocelectomy. Participants shared that these improvements positively impacted their personal and professional lives, highlighting the transformative potential of the procedure (7,13).

However, lingering barriers to full satisfaction,

such as concerns about incomplete recovery or minor complications, were also noted. These findings underscore the importance of long-term follow-up care to address residual issues and ensure sustained improvements. In Jordan, where healthcare systems may lack standardized post-operative protocols, implementing comprehensive follow-up programs could significantly enhance patient outcomes and satisfaction (12,14).

Implications and future directions

This study underscores the need for a holistic, patient-centered approach to care for individuals undergoing microsurgical varicocele repair. The findings highlight the importance of addressing emotional and psychological aspects, improving patient education, involving partners, and developing culturally sensitive support programs. In the Jordanian context, these measures are particularly critical given the cultural emphasis on fertility, family, and relational roles.

Future research should focus on longitudinal studies to explore long-term outcomes and recovery trajectories. Additionally, integrating patient-reported outcomes into clinical care and developing peer support networks could further enhance patient experiences. By addressing these gaps, healthcare providers can ensure a more comprehensive approach to treatment and recovery, ultimately improving the quality of care for patients undergoing microsurgical varicocele repair.

Conclusion

This study provides valuable insights into the emotional, psychological, and relational experiences of Jordanian patients who underwent microsurgical varicocele repair. The findings highlight significant improvements in sexual function, emotional well-being, and quality of life, alongside challenges such as pain, unmet expectations, and lingering anxieties. The role of partners and the importance of education and peer support emerged as critical factors in enhancing recovery outcomes. Addressing gaps in pre- and post-surgical care, particularly in patient education and culturally sensitive support, could improve overall satisfaction and recovery experiences. These findings contribute to a broader understanding of patient-centered care and underscore the need for holistic approaches to treatment in similar healthcare settings.

Limitations of the study

This study has several limitations that should be acknowledged. First, the sample size was limited to 18 participants, which, while sufficient for qualitative analysis, may not fully capture the diversity of experiences across all patients undergoing microsurgical varicocele repair in Jordan. Second, the study relied on self-reported data, which is subject to recall bias and may reflect participants' subjective perceptions rather than objective outcomes. Third, the study was conducted in urban healthcare

settings, potentially excluding perspectives from patients in rural areas with different access to care. Finally, cultural sensitivities around discussing sexual health may have influenced participants' willingness to share certain experiences, potentially limiting the depth of some findings.

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Conflicts of interest

The authors declare that they have no competing interests.

Ethical issues

The research conducted in accordance with the tenets of the Declaration of Helsinki. Ethical approval was obtained from the Institutional Review Boards in Mutah University, Karak, Jordan (Reference number #20025). Written informed consent was secured from all participants after they were provided with detailed information about the study's purpose, procedures, and their rights. Confidentiality was maintained by anonymizing participants' identities and securely storing audio recordings and transcripts. Participants were assured of their right to withdraw at any time without consequences. To ensure cultural sensitivity, the study was conducted in accordance with local ethical standards and norms. Additionally, ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

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