Clinical Research

Patient-reported outcomes and quality of life after pelvic organ prolapse surgery in Indonesia

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ABSTRACT

BACKGROUND Pelvic organ prolapse (POP) is a common condition in older women that significantly impacts quality of life (QoL). Traditional surgical success measures primarily focus on anatomical outcomes, but patient-reported outcomes provide offer a more comprehensive assessment of symptom relief and overall well-being. This study aimed to evaluate patient-reported outcomes and QoL with the Pelvic Floor Disability Index (PFDI-20) and Pelvic Floor Impact Questionnaire (PFIQ-7) following POP surgery.

METHODS This cross-sectional study analyzed secondary data from medical records and patient interviews at Cipto Mangunkusumo Hospital, Jakarta. Patients diagnosed with POP who underwent surgery were followed up at 1, 3, 6, and 12 months postoperatively. PFDI-20 and PFIQ-7 scores were used to assess symptom impact and QoL.

RESULTS Among 34 patients, the most common surgical method was total vaginal hysterectomy (79%), followed by colpocleisis (59%), and sacrospinous hysteropexy (6%). Postoperative PFDI-20 scores showed 76% of patients experienced minimal to no impact, while PFIQ-7 scores indicated 91% reported minimal to no impact on their QoL. 2 patients reported moderate impact, particularly in the urinary domain. No patients experienced severe or very severe impairment at any follow-up interval.

CONCLUSIONS Incorporating patient-reported outcomes with anatomical assessments provides a more accurate evaluation of surgical success in POP based on PFDI-20 and PFIQ-7 scores. Because POP is a multidimensional condition, assessing surgical outcomes requires a multimodal approach that considers symptom relief and QoL.

KEYWORDS patient-reported outcomes, pelvic floor disability inventory, pelvic floor impact questionnaire, pelvic organ prolapse, quality of life

Pelvic organ prolapse (POP) occurs when one or more pelvic organs descend from their normal position into the vaginal canal due to weakened pelvic floor muscles or connective tissues. It affects various vaginal compartments and is classified as cystocele, rectocele, or apical prolapse. Although often asymptomatic initially, symptoms such as pelvic pressure, urinary issues, dyspareunia, and vaginal bleeding may develop over time.[1] POP is the most common form of pelvic floor dysfunction, accounting for 39.8% of cases, with risk factors including aging, high parity, obesity, and vaginal delivery.[2,3] With the global aging population, POP prevalence is expected to rise, potentially doubling by 2050 among people aged ≥60.[4] In Indonesia, data remain limited, but a Surabaya-based study identified a notable prevalence among women aged 60–69.[5]

POP management includes conservative and surgical options, tailored based on age, symptom severity, fertility desires, and comorbidities.[6] Mild cases are often managed with Kegel exercises[7] or pessary

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use, which delays surgery in 85% of cases.[8,9] Surgery is recommended when conservative treatment fails or symptoms are severe in stage 2 or higher cases, based on the Pelvic Organ Prolapse Quantification (POP-Q) system.[10] Surgical techniques vary by affected compartment and include vaginal hysterectomy, sacrocolpopexy, and both uterine-preserving and non-preserving approaches, using transvaginal or abdominal routes.[11,12]

Historically, surgical success in POP has been defined by anatomical correction alone, using POP-Q staging or hymenal position as benchmarks. However, anatomical success does not always reflect patient satisfaction or symptom relief. Subjective measures, including the absence of bulge symptoms and the need for retreatment, correlate more strongly with patient-perceived success and improvements in quality of life (QoL). Studies reveal wide variation in surgical success depending on the criteria used, with subjective cure offering a more meaningful evaluation for patients. This is largely due to the multidimensional nature of POP, which not only affects anatomical structures but also impacts urinary, bowel, sexual, and psychosocial functions. Therefore, relying solely on anatomical outcomes may overlook the broader patient experience and consequence, making it essential to incorporate objective anatomical findings with patient-reported outcomes to truly reflect surgical effectiveness and patient well-being.[13]

Despite the clinical importance of these subjective outcomes, research in this area remains limited, especially in Indonesia. This study aimed to evaluate POP surgery outcomes at multiple postoperative intervals to assess both symptom relief and QoL using both anatomical assessment and patient-reported outcomes through the Pelvic Floor Disability Index (PFDI-20), which has been validated in Indonesia,[14] and the Pelvic Floor Impact Questionnaire-short form 7 (PFIQ-7), which, although not yet formally validated, has been used in a previous study in its Indonesian-translated form.[15]

METHODS

This cross-sectional study employed a descriptive-analytic method using secondary data from medical records and patient interviews to obtain PFDI-20 and PFIQ-7 scores. This study was conducted from May to June 2024, utilizing convenience sampling, thus including all eligible patients who underwent POP surgery at Cipto Mangunkusumo Hospital within 1 year before the study. Eligibility requires complete medical records and availability for interviews. Patients with incomplete or illegible medical records, missed follow-ups, or who were unreachable for postoperative evaluation were excluded from the study. A total of 102 POP surgeries were performed between May 2023 and May 2024. However, 57 patients were assessed only for anatomical outcomes (POP-Q) without any patient-reported outcome measures and thus were not included in this study. Of 45 eligible patients, only 34 were included (four patients had incomplete medical records, three missed their follow-up and became unreachable, and four declined examination).

Variables obtained from medical records included patient demographics (age and parity), type and stage of POP based on POP-Q, surgical methods performed, date of surgery, and any documented postoperative complications. Meanwhile, patient-reported outcomes were obtained directly through interviews using the PFDI-20 to assess symptom burden and PFIQ-7 to evaluate the impact on QoL. The Indonesian version of the PFDI-20 has been validated and demonstrated good reliability and cultural applicability,[14] whereas the PFIQ-7, although it has been used in a previous study, has not yet been formally validated in the Indonesian language.[15]

The minimum required sample size was determined using Slovin's formula,[16] based on the estimated POP surgery patients at Cipto Mangunkusumo Hospital within the time period. As a result, the minimum required sample size for this study was 33 patients. Patients were scheduled for follow-up at 1, 3, 6, and 12 months postoperatively. However, not all patients attended every scheduled visit, and some only came to one or a few of them, resulting in different follow-up intervals.

Data were obtained by reviewing the medical records of Cipto Mangunkusumo Hospital, including patient identity (age, parity, and dates of outpatient and inpatient visits), diagnosis, surgical methods, POP-Q scores preoperatively, postoperative complications, and PFDI-20 alongside PFIQ-7 scores. Only preoperative POP-Q scores were available from the medical records to describe the anatomical severity of prolapse. Preoperative scores for patient-reported outcomes (PFDI-20 and PFIQ-7) were not documented.

Preoperative POP-Q scores were then interpreted into stages, and the leading edge was determined. Postoperative PFDI-20 and PFIQ-7 scores, ranging from 0–100, were classified as follows: 0–20 (minimal to no impact), 21–40 (mild), 41–60 (moderate), 61–80 (severe), and 81–100 (very severe).[17,18]

Ethical approval was obtained from the Ethics Committee of the Faculty of Medicine, Universitas Indonesia–Cipto Mangunkusumo Hospital (No: KET-1730/UN.2F1/ETIK/PPM.00.02/2024). Patient confidentiality, including identities and other sensitive information, was strictly maintained by anonymizing data and securely storing it to prevent unauthorized access. Findings were reported in a manner that protected patient privacy.

Statistical methods

Data were recorded in a pre-prepared Microsoft Excel (Microsoft Corporation, USA) table and analyzed descriptively. Categorical data, such as POP-Q staging, surgical methods, PFDI-20, and PFIQ-7 interpretations, are presented as numbers and proportions (%). Numerical data, such as age and parity, are presented as mean and standard deviation. Data presentations include tables with explanatory text. All data were analyzed descriptively using Microsoft Excel.

RESULTS

Table 1 summarizes the patient characteristics. The mean age was 65.44 (9.51) years, with a mean parity of 3.33 (1.18). Most patients had stage 4 (50%) and stage 3 (47%) POP. The three main POP surgical methods were total vaginal hysterectomy (79%), colpocleisis (59%), and sacrospinous hysteropexy (SSH) (6%), while other procedures served as adjunctive POP treatment.

As shown in Table 2, PFDI-20 scores indicated that most patients experienced minimal to no impact on their symptoms following surgery (76%), while 18% reported a mild impact and 6% a moderate impact. No patients reported a severe or very severe impact. Similarly, PFIQ-7 scores showed that 91% of patients had minimal to no impact on their QoL, with 9% reporting mild impact. No cases of moderate, severe, or very severe impact on their QoL were recorded at any follow-up interval.

DISCUSSION

Most of the women in this study who underwent POP surgery reported favorable postoperative outcomes, with 76% experiencing minimal to no

Table 1. Patient characteristics

Variables	Follow-up time after procedure				Total (N = 34)
	1 month (N = 5)	3 months (N = 6)	6 months (N = 11)	1 year (N = 12)	
Age (years), mean (SD)	64 (4.36)	65.83 (9.64)	67.09 (8.97)	64.33 (11.99)	65.44 (9.51)
Parity, mean (SD)	2.75 (0.96)	4.2 (1.48)	3.33 (1.22)	3.17 (1.03)	3.33 (1.18)
POP-Q staging, n					
Stage 1	0	0	0	0	0
Stage 2	0	0	0	1	1
Stage 3	3	2	7	4	16
Stage 4	2	4	4	7	17
Surgical methods, n					
TVH	3	5	9	10	27
Colpocleisis	2	5	5	8	20
AC	3	1	7	5	16
PCP	3	1	7	5	16
SSF	2	1	4	3	10
Kelly plication	1	3	3	1	8
TOT	0	1	2	1	4
SSH	1	0	1	0	2

AC=anterior colporrhaphy; PCP=posterior colpoperineorrhaphy; POP-Q=Pelvic Organ Prolapse Quantification; SD=standard deviation; SSF=sacrospinous fixation; SSH=sacrospinous hysteropexy; TOT=transobturator tape; TVH=total vaginal hysterectomy

Table 2. PFDI-20 and PFIQ-7 outcomes within follow-up intervals

Variables	Follow-up time after procedure, n				Total (N = 34)
	1 month (N = 5)	3 months (N = 6)	6 months (N = 11)	1 year (N = 12)	
Complications	0	0	0	0	0
PFDI-20					
Minimal to no impact	1	4	11	10	26
Mild impact	2	2	0	2	6
Moderate impact	2	0	0	0	2
Severe impact	0	0	0	0	0
Very severe impact	0	0	0	0	0
PFIQ-7					
Minimal to no impact	4	6	10	11	31
Mild impact	1	0	1	1	3
Moderate impact	0	0	0	0	0
Severe impact	0	0	0	0	0
Very severe impact	0	0	0	0	0

PFDI-20=Pelvic Floor Disability Index-20; PFIQ-7=Pelvic Floor Impact Questionnaire-short form 7

symptom burden based on PFDI-20 scores, and 91% reporting minimal to no impact on their QoL based on PFIQ-7 scores. No patients reported severe or very severe impact in either domain at any follow-up interval. These findings support the effectiveness of surgical intervention in improving both symptom relief and QoL, particularly among older women, who represented the majority of the study population. In this study, the average age of women with POP is around 65 years old, as stated in global data from 1990 to 2019, which shows that the highest incidence rate for POP was in the 65–75 age group.[3] However, patient characteristics can vary across centers. A study by Belayneh et al[19] on 193 patients with stage 3–4 prolapse reported a mean surgical age of 49.3 (9.4) years and a mean parity of 5.9 (2.6).

Although age and parity are known risk factors for POP, their effect on postoperative QoL remains unclear. Richter et al[20] found significant QoL improvement across all age groups following abdominal sacrocolpopexy or SSH procedure. However, older patients had slightly longer hospital stays (3.1 [1.1] *versus* 2.7 [1.5] days, $p = 0.02$) due to their baseline comorbidities and more severe POP grade.[20]

This study demonstrated that surgical intervention for POP significantly improved patient-reported outcomes and QoL, as evidenced by the PFDI-20 and PFIQ-7 scores. The results align with the existing literature that underscores the efficacy of surgical treatments in alleviating symptoms and enhancing well-being in women with POP. A meta-analysis by Ghanbari et al[21] confirmed significant QoL improvements following POP intervention surgery. Both vaginal and abdominal surgeries showed a mean difference of −48.08 (confidence interval [CI] −62.34 to −33.77; $p<0.01$) for PFDI-20 and −33.41 (CI −43.48 to −23.34; $p<0.01$) for PFIQ-7.[21]

The high percentage of patients reporting minimal to no impact on their daily activities post-surgery highlights the effectiveness of surgical interventions in providing symptom relief and improving QoL. These results align with various studies demonstrating significant reductions in symptom burden and improvements in physical and social functioning.[21] Ismail et al[22] further reported great improvement in the bowel, sexual, and urine function following POP surgery, with 40% of voiding issues and urinary system resolved, and a 47% improvement in dyspareunia. Notably, no patients reported moderate, severe, or very severe impact on QoL at any follow-up interval.

At 1 month post-surgery, 60% of respondents assessed using the PFDI-20 reported mild or minimal to no impact, whereas 100% of those assessed with the PFIQ-7 reported similar outcomes. Conversely, 40% of PFDI-20 respondents reported a moderate impact 1 month post-surgery, primarily due to persistent urinary incontinence. By the 3rd month, their QoL had improved. The increase in respondents at the 6- and 12-month

follow-ups was due to patients who had missed earlier follow-up schedules during the 1st and 3rd months, contributing to the increase in the mild impact category. Notably, some patients at the 6-month follow-up continued their urinary incontinence complaints, and by the 12th month, unresolved urinary incontinence complaints remained a key factor in increased PFDI-20 and PFIQ-7 mild impact scores.

Symptom resolution, especially urinary symptoms, may not always be achieved despite successful surgery. Occult stress urinary incontinence (SUI) is a possible explanation, wherein urinary incontinence only occurs after prolapse correction. Before surgery, the prolapse itself may obstruct the urethra, masking underlying incontinence. Once the prolapse is corrected, the urethral obstruction is relieved, potentially unmasking pre-existing SUI. This condition is often challenging to diagnose preoperatively and can significantly affect patient outcomes, as reflected in the results of this study.

Currently, a standardized definition of surgical success in POP remains elusive.[21] Research by Barber et al[13] highlights that the absence of vaginal bulge symptoms, as assessed by the PFDI-20, is the strongest predictor of overall symptom improvement and enhanced QoL. However, to ensure credibility, this symptom-based measure must be integrated with anatomical success data.[13] In this study, some patients either missed their follow-up appointments or declined examination, resulting in incomplete anatomical data for their follow-up evaluations. Nevertheless, PFDI-20 and PFIQ-7 outcomes indicated that a significant majority of patients reported minimal or no symptoms post-surgery, suggesting potential treatment success in terms of symptom resolution. However, symptomatic improvement alone does not necessarily guarantee overall success, as unresolved symptoms can still impact QoL, even when anatomical correction is achieved.

This study also has limitations that should be addressed in future research. The small sample size limits the generalizability of the findings. A larger sample size would provide stronger data and potentially reveal different insights into surgical outcomes. Additionally, as a single-center study conducted at Cipto Mangunkusumo Hospital in Indonesia, the findings may not apply to other populations with varying demographics, healthcare systems, or surgical practices. Descriptive study design and reliance on secondary data from medical records and patient interviews may introduce biases due to incomplete or inconsistent documentation. Furthermore, this study did not compare pre- and postoperative PFDI-20 and PFIQ-7 scores, limiting the ability to assess relative change over time. Finally, interpretation of the PFIQ-7 results should be approached with caution as it has not yet undergone formal validation in the Indonesian language form.

Based on the findings of this study, several recommendations are proposed to enhance postoperative patient outcomes and ensure holistic well-being. Routine follow-ups should be conducted to monitor recovery and detect early signs of recurrence. Each follow-up should include a comprehensive assessment of symptoms using validated questionnaires, such as the PFDI-20 and PFIQ-7. Additionally, physical examinations using the POP-Q system should be performed to evaluate anatomical success. A multimodal approach combining these assessments helps ensure symptomatic relief and anatomical integrity. Further research is recommended to explore persistent postoperative urinary symptoms, especially the possibility of occult SUI, which may be unmasked following successful anatomical correction. Addressing this issue could significantly improve surgical planning and long-term patient satisfaction.

In conclusion, this study demonstrates that surgical intervention for POP can lead to substantial improvement in patient-reported symptoms and QoL, as reflected by favorable PFDI-20 and PFIQ-7 outcomes. These findings support the value of incorporating patient-reported outcomes alongside anatomical assessments for a more comprehensive evaluation of surgical success. However, interpretation of these results should consider the study's limitations, including its small sample size, single-center, and cross-sectional study design. Further multicenter studies with larger populations and long-term follow-up are needed to validate these findings and guide clinical practice.

Conflict of Interest
The authors affirm no conflict of interest in this study.

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