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ORIGINAL ARTICLE

Impact of Vaginal Hysterectomy on Quality of Life, Body Image, and Sexual Function in Women with Pelvic Organ Prolapse: A Study of Rural Women in a Low-Resource Setting

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Abstract

Introduction and Hypothesis This study examines the repercussions of vaginal hysterectomy and apical suspension for prolapse, when used as a surgical remedy for pelvic organ prolapse (POP), with regard to sexual function, body image, and the overarching quality of life (QoL) in women living in low- to middle-income rural areas.

Methods We conducted a longitudinal assessment involving 108 sexually active women with a diagnosis of stage 3 or higher POP undergoing vaginal hysterectomy and apical suspension for prolapse. Evaluations were performed preoperatively and at 6 months postoperatively. Participants underwent qualitative in-depth interviews and completed the 36-item Short Form Health Survey (SF-36), Body Image Scale (BIS), and Female Sexual Function Index (FSFI). We calculated aggregate and domain-specific scores from these instruments and utilized the Wilcoxon signed-rank test to discern pre- to post-surgical changes.

Results Data from a total of 108 women were analyzed. The mean age of participants was 56.65 ± 10.03 years. Post-hysterectomy outcomes showed a statistically significant enhancement in sexual function, evidenced by increased scores on the FSFI from 13.42 ± 4.87 preoperatively to 27.99 ± 4.88 postoperatively ($p < 0.001$). Notable improvements were similarly recorded on the BIS and SF-36 subscales ($p < 0.001$). Qualitative analyses suggested that these positive changes in sexual function might be directly attributable to the alleviation of POP-related symptoms.

Conclusions Pelvic floor dysfunction presents a multifaceted health concern with both functional and anatomical repercussions for affected individuals. This investigation highlights the association between pelvic reconstructive procedures and improvement in women's QoL in an understudied population.

Keywords Body Image Scale · Female Sexual Function Index · Low-income health disparities · Pelvic organ prolapse · Quality of life · Vaginal hysterectomy

Introduction

As life expectancy increases, so does the prevalence of pelvic floor disorders (PFDs), with pelvic organ prolapse (POP) being notably prevalent among menopausal women. This disorder leads to significant impairments in functional ability and quality of life (QoL), spanning physical, psychological, social, occupational, and sexual realms [1–5]. POP causes physical alterations to women's genitalia and can have an adverse impact on their body image, subsequently leading to negative changes in sexual function subscales, such as a decrease in libido or diminished genital sensation [6].

The multifaceted impact of POP necessitates a comprehensive approach to medical and surgical treatments, which are critical in managing these conditions effectively. These disorders profoundly affect millions, compounded by inadequate health care access, minimal awareness due to low literacy rates, and limited autonomy in managing these conditions [7]. Consequently, the detailed explanation and assessment of medical and surgical treatment modalities have become increasingly critical [3].

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Our study group includes patients from a rural area in a developing country, where women often have low decision-making authority within households and engage in physically demanding agricultural and livestock work. Such conditions contribute to delayed health care access, early and frequent childbirths, and inadequate nutrition—factors independently associated with PFDs and POP [8]. These circumstances not only predispose women to POP but also engender feelings of shame and helplessness, often leaving them neglected and without adequate care [7]. Although it is recognized that the risk of uterine prolapse reaches approximately 50%, with one-third of patients requiring surgical intervention [9], it is hypothesized that PFDs may be more prevalent and present with more severe symptoms in resource-limited settings [10]. Given the realities of our patients'living conditions, a significant statistic in the literature is that 1 in 10 women is expected to undergo at least one surgical procedure for prolapse [11]. Consequently, the patients we treat will be confronted with choosing a surgical method that aligns with their treatment goals and obligations [12]. Vaginal hysterectomy (VH) has been the most common surgical treatment for POP [13, 14].

Our study group represents a vulnerable patient cohort characterized by a lack of education, inadequate awareness, and weak self-perception of health. Owing to both financial and physical constraints, these patients struggle to access appropriate health care services and often fail to take action to improve their conditions as life's exigencies accumulate, leaving them with limited options to take proper measures as the disease progresses.

This study focuses on the impact of vaginal hysterectomy, the most common surgical treatment for POP, on the sexual function, QoL, and body image of these rural women. POP restricts daily activities, compromises sexual health, and detrimentally affects body image, leading to discontent, frustration, sadness, and symptoms of depression, anxiety, and irritability [15]. Our research emphasizes the importance of comprehensive follow-up care to address these profound effects on women's psychological, social, and sexual well-being, particularly in resource-limited settings.

Our aims are to provide valuable insights into the overall well-being of women undergoing vaginal hysterectomy and apical suspension for POP through a cross-sectional study of women with apical prolapse. By assessing life quality, body image perception, and sexual functions, this study seeks to highlight critical areas in need of attention and re-evaluation in similar vulnerable populations.

Materials and Methods

Ethics Review

This study received approval from the Review Board of our University Faculty of Medicine Research and Application Hospital (80576354–050–99/351).

All patients in the study voluntarily participated, having signed a detailed consent form outlining the study's specifics.

Population

This cross-sectional study included 108 sexually active women who presented with POP at our University Hospital, patients presenting at our outpatient clinic with symptoms of apical prolapse, who were scheduled for hysterectomy and apical repairs.

Follow-up appointments were arranged 6 months postoperatively to assess patients'postoperative progress. This timeframe was selected with the anticipation that patients would have concluded their recovery, surmounted any apprehension regarding surgical complications, and addressed concerns about post-surgical dissatisfaction. By this point, they were expected to return to their preoperative routines.

Inclusion and Exclusion Criteria

We structured our study group to consist of patients identified with a stage 3 or higher POP-Q assessment, for whom vaginal hysterectomy and apical suspension for prolapse were planned.

An immobile uterus was considered an exclusion criterion for VH, irrespective of the degree of prolapse. Other exclusion criteria included individuals who were not sexually active, pregnant, or unwilling to provide comprehensive survey responses. Furthermore, individuals with neurological deficits, chronic pain, or psychiatric conditions were excluded. Patients who did not attend the 6-month postoperative follow-ups or failed to respond to the questionnaire were excluded from our study. During the administration of the questionnaires, if requested by patients who could not read, the texts were read to them. A physician made the questions understandable and answerable without adding any interpretation for those who can read but need help understanding owing to insufficient educational levels.

Outcome Measures

All participating women were examined before and 6 months after the surgery. Women were asked to fill out the SF-36 (Short Form-36 Health Survey), FSFI (Female Sexual Function Index), and BIS (Body Image Scale) for quantitative evaluation.

A standardized assessment was performed on each participant, including a comprehensive medical history, a physical examination, and a detailed gynecological examination incorporating the POP-Q assessment.

At the beginning of the interview, the interviewer clarified the study's objectives and ensured the confidentiality of the data provided by the participants. The sexual function of the patients was evaluated using the FSFI, which consists of 19 questions and is designed to assess sexual function over the preceding 4 weeks. The questionnaire covers six subheadings: desire, arousal, lubrication, orgasm, satisfaction, and pain. Responses to questions are scored on a Likert-type scale ranging from "always" to "never," with scores ranging from 0 to 5. The total score spans from a minimum of 2 to a maximum of 36, where higher scores signify satisfactory sexual function. Ergun Oksuz et al. [16] demonstrated the validity and reliability of the Turkish version of the questionnaire. The SF-36 questionnaire was employed to assess the QoL for all participants. It comprises eight sections: physical functioning (PF), role limitations due to physical problems (PR), role limitations due to emotional problems (ER), social functioning (SF), mental health (MH), energy/vitality (EVT), bodily pain (BP), and general health (GH). Each section is individually evaluated and scored on a scale from 0 to 100, where a higher score indicates a better QoL. Kocyigit et al. [17] established the validity and reliability of the Turkish version of the questionnaire. The BIS comprises 10 items and was developed to provide a concise and comprehensive assessment of affective (e.g., feeling self-conscious), behavioral (e.g., difficulty looking at the naked body), and cognitive (e.g., satisfaction with appearance) aspects of body image in patients. The patients were asked to skip that last question as there were no scars due to the surgery or disease. Utilizing a four-point scale (0 = not at all to 3 = very much), the final score is the sum of scores for the nine items, ranging from 0 to 27, with a lower score indicating a better body image. The validity and reliability of the Turkish version of the questionnaire were assessed by Karayurt et al. [18].

Operation

In all modified stages of vaginal hysterectomy, the"Mujas"technique was used, employing an 18.80 cm small-jawed LigaSure device to seal vessels up to 7 mm in diameter [19]. A reversed V-shaped incision on the anterior vaginal wall removed a triangular tissue piece, enhancing visibility during paracervical dissection and removing the need for the final stages of anterior colporrhaphy. The apex of the reversed V incision was adjusted based on the potential need for anterior colporrhaphy. All steps of the vaginal hysterectomy, up to the closure of the vaginal cuff, were completed using the LigaSure device without the use of sutures. Instead of tying the tissue behind the grasped area, the tissue is cauterized, which helps to preserve vaginal length. Patients operated on with this method have shown more noticeable improvements in sexual function scores when compared with traditional vaginal hysterectomy [13].

McCall culdoplasty and high uterosacral plication were performed on all patients, and sacrospinous fixation was performed in cases of stage 4 prolapse.

We did not include urinary incontinence surgeries in our study. As a surgical team, our general approach is to evaluate the complaints of patients with incontinence symptoms during the postoperative period and take action accordingly.

Statistical Analyses

The software IBM SPSS Statistics 21.0 (Released 2012; IBM SPSS Statistics for Windows, Version 21.0; IBM, Armonk, NY, USA) and MS-Excel 2007 software were employed for statistical analysis and calculations. In the study, the appropriateness of the normal distribution for the subdimensions scores of the Short Form-36 and FSFI was assessed graphically and using the Shapiro–Wilks test. The findings indicated that none of the continuous variables adhered to a normal distribution. Descriptive statistics for the variables were presented as median (IQR-interquartile range) values. The Wilcoxon signed rank test was utilized to compare preoperative and postoperative scores for the subdimensions of the FSFI, BIS, and SF-36 surveys. Statistical significance in the analysis was interpreted at the level of 0.05. The relationships between categorical variables were checked using Chi-squared analysis.

Results

Demographics

A total of 108 women were included in the study. Median age value was 56.0 years. 37.96% had a history of grand multiparity, 68.5% had a primary school level of education, and 53.7% had a BMI in the overweight or obese category. In the study population, 68 individuals (63%) were classified as low income, 32 individuals (30%) as middle income, and 8 individuals (7%) as high income. Among the 108 women, 43.51% had stage 3 prolapse, whereas 56.48% exhibited stage 4 apical prolapse. Basic demographics are reported in Table 1.

Sexual Function

Changes in the total and individual domains of FSFI scores are shown in Table 2. The data suggest a statistically significant difference with p value < 0.01 in total and individual

Table 1 Demographic characteristics of the study group

	All patients ($n = 108$)
Age, median (IQR)	56.0 (13.0)
Body mass index, *n* (%)	
Underweight (≤ 18,5)	13 (12.0)
Normal (18.5–24.9)	37 (34.3)
Overweight (25–29.9)	28 (25.9)
Obese (≥ 30)	30 (27.8)
Education status, *n* (%)	
Primary	74 (68.5)
Middle to high school	30 (27.8)
University	4 (3.7)
Parity, *n* (%)	
Nulliparity	2 (1.8)
Multiparity (1–4 births)	65 (60.1)
Grand multiparity (5 ≤births)	41 (37.9)
Income level, *n* (%)	
Low income	68 (63)
Middle income	32 (30)
High income	8 (7)
Systemic disease, *n* (%)	
No	75 (69.4)
Yes	33 (30.6)
Smoking, *n* (%)	
No	99 (91.7)
Yes	9 (8.3)

scores of each domain of FSFI questionnaires pre- and postoperatively. A statistically significant increase was found between pre- and postoperative FSFI sub-dimensions: sexual desire, arousal, lubrication, orgasm, satisfaction, and pain ($p < 0.001$).

Quality of Life

There was an increase in the SF-36 QoL of individuals after surgery compared with the preoperative period (Table 3). A statistically significant difference was found between the pre- and postoperative SF-36 sub-dimensions physical function, physical role difficulty, emotional role difficulty, energy/vitality, mental health, social functioning, pain, and general health perception ($p < 0.001$).

Body Image

The body image of all individuals improved after vaginal hysterectomy and apical suspension for prolapse (Table 4). A statistically significant difference was detected between the two time-dependent measurements of BIS scores (preoperative, postoperative; $p < 0.001$). A time-dependent decrease in BIS values occurred in all individuals.

Discussion

Our study was conducted in one of the most rural areas of our developing country. Under the realities of our region, our patients largely consist of uneducated women who have had multiple childbirths and are over the age of 45. Our study is focused on postmenopausal women generally. Owing to living conditions that require physically demanding labor and unhealthy diets rich in carbohydrates but poor in protein, these low-income women face significant obesity issues, and nearly all presented with grade 3–4 prolapse. Previously, their complaints had been neglected, and they could not access health services or conservative treatments. In our study group, composed predominantly of women engaged in demanding agricultural and livestock work, who face significant barriers in accessing health care, have little to no autonomy, lack a voice within their families, and live lives centered around reproduction with multiple births, surgical treatment resulted in significant improvements in QoL, sexual function, and body perception scores across all subgroups. These improvements were observed in the 6-month postoperative evaluation compared with the preoperative

Table 2 Mean FSFI domain scores before and after surgery

Subscales	Preoperative assessment ($n = 108$)		Postoperative 6-month assessment ($n = 108$)		*p* value*
	Median (IQR)	25 th to 75 th percentile	Median (IQR)	25 th to 75 th percentile	
Sexual desire	1.8 (1.2)	(1.2–2.4)	4.2 (1.2)	(3.6–4.8)	< 0.001
Arousal	1.8 (1.8)	(1.2–3.0)	4.2 (1.2)	(3.6–4.8)	< 0.001
Lubrication	2.1 (1.8)	(1.2–3.0)	5.4 (1.5)	(4.2–5.7)	< 0.001
Orgasm	2.0 (1.2)	(1.2–2.4)	4.8 (2.0)	(3.6–5.6)	< 0.001
Satisfaction	2.8 (1.2)	(2.4–3.6)	4.8 (1.2)	(4.4–5.6)	< 0.001
Pain	3.6 (1.6)	(2.0–3.6)	4.8 (1.8)	(4.0–5.8)	< 0.001

*Signed rank test

Table 3 Mean SF-36 domain scores before and after surgery

	Preoperative ($n = 108$)		Postoperative ($n = 108$)		p value*
	Median (IQR)	25 th to 75 th percentile	Median (IQR)	25 th to 75 th percentile	
SF-36					
Physical function	55.0 (25.0)	(40.0–65.0)	85.0 (20.0)	(75.0–95.0)	< 0.001
Physical role difficulty	25.0 (50.0)	(0.0–50.0)	100.0 (25.0)	(75.0–100.0)	< 0.001
Emotional role difficulty	33.3 (66.6)	(0.0–66.6)	100.0 (33.4)	(66.6–100.0)	< 0.001
Energy/vitality	50.0 (24.0)	(31.0–55.0)	75.0 (20.0)	(65.0–85.0)	< 0.001
Mental health	48.0 (20.0)	(40.0–60.0)	84.0 (16.0)	(76.0–92.0)	< 0.001
Social functioning	50.0 (37.5)	(37.5–75.0)	87.5 (22.5)	(75.0–97.5)	< 0.001
Pain	100.0 (0.0)	(100.0–100.0)	25.0 (0.0)	(100.0–100.0)	< 0.001
General health perception	45.0 (25.0)	(35.0–60.0)	77.5 (15.0)	(70.0–85.0)	< 0.001

*Signed rank test

Table 4 Median Body Image Scale (BIS) scores before and after surgery

	Preoperative ($n = 108$)		Postoperative ($n = 108$)		p value*
	Median (IQR)	25 th to 75 th percentile	Median (IQR)	25 th to 75 th percentile	
BIS	23.0 (3.0)	(21.0–24.0)	1.0 (1.0)	(1.0–2.0)	*< 0.001*

*Signed rank test

period. This makes our study valuable, as literature on marginalized groups of women is limited.

Traditionally, the focus was on the physical correction of prolapse. However, the modern measures of surgical success also account for patient-reported improvements in symptoms and QoL [20].

Many studies show significant improvements in quality-of-life measures after POP surgery, in addition to the primary objective of reducing prolapse symptoms [21–23]. In our study, there was a significant improvement in all domains of the SF-36 after surgery. Our study cohort, comprising older individuals with advanced prolapse, may be linked to the fact that women postpone seeking treatment for their prolapse symptoms. This delay could stem from a lack of awareness of available treatments, a reluctance to discuss anatomical changes in their genital regions, feelings of embarrassment, and, ultimately, an acceptance of living with these conditions over time.

Sexual concerns are common among women with PFDs [24, 25], and POP can impair sexual function, causing discomfort or fear during intercourse, particularly in advanced stages [26]. However, studies present mixed findings regarding the impact of prolapse on sexual function. Although Handa et al. found an association between advanced-stage prolapse and infrequent orgasm ($p = 0.02$), they and other researchers noted no consistent increase in sexual complaints with advancing prolapse stages [24, 27–29]. Barber et al. reported that women with stages 3 and 4 POP faced more interference in sexual relations but observed no link between prolapse and sexual satisfaction or intercourse frequency [27]. Surgical interventions also show varied outcomes: Glavind et al. reported improved sexual function scores following native tissue repair [29], whereas Weber et al. found no improvement in sexual activity frequency or satisfaction but reported increased dyspareunia after prolapse correction [30]. Furthermore, Long et al. demonstrated that although POP surgery effectively restores anatomy, premenopausal women experienced postoperative declines in FSFI scores and a higher incidence of worsened dyspareunia compared with postmenopausal women [31]. In our study group, which predominantly consisted of postmenopausal women, we observed an improvement in postoperative FSFI scores compared with preoperative scores.

Sexual satisfaction encompasses elements beyond mere functionality. It is influenced by various factors, including emotional well-being, intimacy, overall health, and QoL [27]. Genital prolapse, through genital distortions, causes negative emotions such as an unfavorable body image and feeling less sexually attractive or desirable [32]. This situation may cause avoidance of engaging in sexual behaviors, reduce self-confidence, and increase susceptibility to depression. Women with impaired body image due to prolapse may experience improved self-awareness and sexual function after pelvic floor reconstruction, as supported by findings from various studies and our data [33].

Evaluating body image is important when examining the outcomes of surgery for POP, as it is closely associated with the risk of sexual dysfunction. Incorporating comprehensive evaluations into the treatment process is essential for a deeper understanding and management of factors influencing patient recovery, particularly in women with POP. Negative

genital body image has been identified as a significant issue affecting sexual health, as evidenced by the study by Lowder et al., which highlighted the impact of prolapse on perceptions of attractiveness and femininity [34]. To address this, Lowder et al. developed the Body Image in POP (BI-POP) questionnaire, a tool specifically designed to evaluate body image concerns related to the appearance and function of the genitals and the psychological implications of prolapse [34].

Despite these insights, findings regarding body image perceptions at different stages of prolapse remain inconclusive. For example, although Moroni et al. and Lowenstein et al. observed no significant differences in body image perceptions across various stages of POP [35, 36], Jelovsek and Barber reported that women with advanced prolapse (POP-Q 3 or 4) demonstrated increased self-awareness and felt less feminine and attractive than those without prolapse [37].

These findings underscore the complexity of the relationship between prolapse severity, body image, and psychological well-being. By integrating tools such as the BI-POP questionnaire and considering individual psychological factors, health care providers can develop more personalized treatment approaches, ensuring that both physical and emotional aspects of recovery are addressed effectively. Our study results also reported positive changes in BIS scores after the operation.

Our study group consisted of patients with grade 3–4 prolapse who had delayed access to treatment, had normalized living in this way, and were neglected in terms of health services. The QoL assessment, the sexual function scale, and the body image perception scale showed significant improvement in all parameters.

This study has several significant limitations. First, the representativeness of our study population is limited, as it primarily consists of women with low socio-economic and educational status. This constraint reduces the generalizability of our findings to the broader Turkish female population. Second, the small sample size is another limitation, as the study only included older women with advanced prolapse. We believe that future research with larger and more diverse sample groups, including women of different ages and stages of prolapse, would enable more comprehensive comparisons and provide more robust results. These limitations should be considered when interpreting the study's findings.

A strength of our study is that it includes a postoperative control group rather than healthy women or those with varying stages of POP. This highlights the positive relationship of reconstructive surgery to body image, sexual function, and QoL, even if it is not explicitly stated. Other strengths include prospective data collection and consistency in surgical procedures by the same team, minimizing potential bias. Our research addresses a sensitive topic, especially in developing countries, where concerns related to sexual function are often underreported. Finally, the strength of our study is also established by representing the well-being of those who live in rural areas with limited studies, low socio-economic status, and low education, who work in heavy jobs, and who have difficulty accessing health services, addressing the paucity of data on disadvantaged populations in urogynecology, which highlights one of the greatest strengths of our study.

Conclusion

In low- and middle-income countries, there is a need for better reporting of the effects of prolapse surgery on QoL. These interventions should address symptoms to enhance QoL rather than just correcting anatomical issues. Our study is consistent with the result that prolapse surgery is significantly associated with improvements in symptoms, QoL, body image, and substantial benefits in physical and sexual functions.

Therefore, we recommend continuing surgical interventions for patients deprived of health services and diagnosed at an advanced stage of their condition. By offering surgical treatments, we aim to create positive developments in their lives and well-being, ensuring that these patients do not continue without adequate health services.

Future research should assess the long-term effects and demographic differences to improve women's overall QoL with prolapse.

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Authors' Contributions A.Y.: protocol/project development, data collection or management, manuscript writing/editing; M.C. protocol/project development, data collection or management, data analysis, manuscript writing/editing.

Data Availability The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics Statement This study received approval from the Review Board of the Kafkas University Faculty of Medicine Research and Application Hospital(80576354–050-99/351).

Conflicts of interest None.

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