

Abdominal vs Vaginal Hysterectomy: A Comparative Study of the Postoperative Patient Satisfaction

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Abstract

Hysterectomy is one of the most commonly performed gynecological procedures, with abdominal and vaginal approaches being widely utilized. While abdominal hysterectomy (AH) is traditionally more common, vaginal hysterectomy (VH) has been associated with lower morbidity, reduced hospital stays, and faster recovery. This study aims to compare the postoperative outcomes, quality of life, and patient satisfaction between VH and AH. This

randomized controlled trial was conducted at the Department of Obstetrics & Gynecology, Lady Willingdon Hospital, Lahore. A total of 100 females, aged 25-65 years and undergoing hysterectomy for abnormal uterine bleeding, were randomly assigned to two groups: Group A (VH, n=50) and Group B (AH, n=50). Key intraoperative parameters such as operative time and intraoperative blood loss were recorded, while postoperative recovery was assessed using hospital stay duration, pain score (SF-36), functional capacity, and quality of life scores. Patient satisfaction was evaluated after one month. Data were analyzed using SPSS v.25, with independent samples t-test and chi-square test used for statistical comparisons. A p-value ≤ 0.05 was considered statistically significant. Baseline demographic and clinical characteristics were comparable between the two groups ($p > 0.05$ for age, BMI, parity, socioeconomic status, and education level). VH was associated with significantly shorter operative time (75.3 ± 12.5 min vs. 98.6 ± 15.2 min, $p < 0.001$) and lower intraoperative blood loss (210.5 ± 50.3 mL vs. 320.7 ± 65.1

mL, $p < 0.001$) compared to AH. Postoperatively, VH patients had a shorter hospital stay (2.3 ± 0.8 days vs. 4.5 ± 1.1 days, $p < 0.001$) and reported significantly lower pain scores (85.4 ± 10.5 vs. 62.3 ± 12.8 , $p < 0.001$). Functional capacity and physical aspect scores were also significantly higher in VH patients ($p < 0.001$), indicating better recovery. Moreover, patient satisfaction was significantly greater in the VH group (90.0%) compared to the AH group (65.5%, $p = 0.002$), with quicker return to normal activities (3.5 ± 1.2 weeks vs. 5.8 ± 1.5 weeks, $p < 0.001$). Vaginal hysterectomy demonstrated superior postoperative outcomes, including shorter operative time, reduced intraoperative blood loss, faster recovery, lower pain levels, and greater patient satisfaction, compared to abdominal hysterectomy. These findings support the preference for vaginal hysterectomy when feasible and highlight its role in improving patient quality of life and surgical efficiency. Further multi-center trials with extended follow-up are recommended to validate these findings.

INTRODUCTION

Hysterectomy is the surgical removal of uterus and is the second most common gynecological surgical procedure done after caesarean section. There are several indications for hysterectomy [1-3]. A substantial number of women undergo hysterectomy annually, and 70% of hysterectomies are performed for benign indications, including leiomyoma, adenomyosis, severe dysmenorrhea and uterine prolapse [4, 5]. The surgical approach of hysterectomy is the most important factor responsible for postoperative morbidity. Until the present, the approaches for hysterectomies are vaginal, abdominal, laparoscopic and robotic assisted laparoscopic hysterectomy [6, 7]. Abdominal hysterectomy is the most widely performed technique worldwide and accounts for 66% of cases, while vaginal hysterectomy and laparoscopic hysterectomy account for 22% and 12% of cases respectively [8, 9]. Vaginal hysterectomy is associated with lesser morbidity, early ambulation, reduced hospital stay, and reduced cost when compared to abdominal hysterectomy and laparoscopic hysterectomy [10, 11]. Despite the advantages of vaginal hysterectomy, abdominal hysterectomy is still the most commonly performed

technique worldwide, being associated with increased complications, higher costs, and longer hospital stay [12, 13].

Silva-Filho et al., conducted a trial and found that patients' satisfaction was higher with vaginal hysterectomy (90%) as compared to total abdominal hysterectomy (65.5%). The median functional capacity was 72.5 (interquartile range: 55–90) in the total abdominal hysterectomy group and 95 (75–100) in the vaginal hysterectomy group ($P=0.002$). The physical aspect was 37.5 (0–100) and 100 (25–100) ($P=0.008$), respectively. The pain score was also lower in the total abdominal hysterectomy group 51 (41–65) vs 84 (59.2–100) ($P=0.002$) [14].

Fatima et al., also conducted a trial in 2018 and found that patients' satisfaction was higher with vaginal hysterectomy (84.44%) as compared to total abdominal hysterectomy (64.44%). Although statistically it was insignificant ($p\text{-value} = 0.051$) [15]. Later on, in 2021, and found that satisfactory quality of life was noted in 84.44% patients with vaginal hysterectomy while in 64.44% patients with total abdominal hysterectomy. Statistically significant ($P = 0.051$) difference between the frequency of satisfactory quality of life between the both groups was noted [16].

Rationale of this study is to compare the postoperative quality of life and satisfaction with abdominal versus vaginal hysterectomy. Literature showed that vaginal hysterectomy is more efficient in achieving patient satisfaction and patient lead a better quality of life ahead as compared to total abdominal hysterectomy. But conflicting data has been observed in literature. Therefore, we want to conduct this study to confirm whether vaginal hysterectomy is more reliable to implement in local setting and replace total abdominal hysterectomy. This will help to improve our practice and knowledge, and we will implement findings of this study in local setting in

future. The overall schematic representation of this study is depicted in Figure 1.

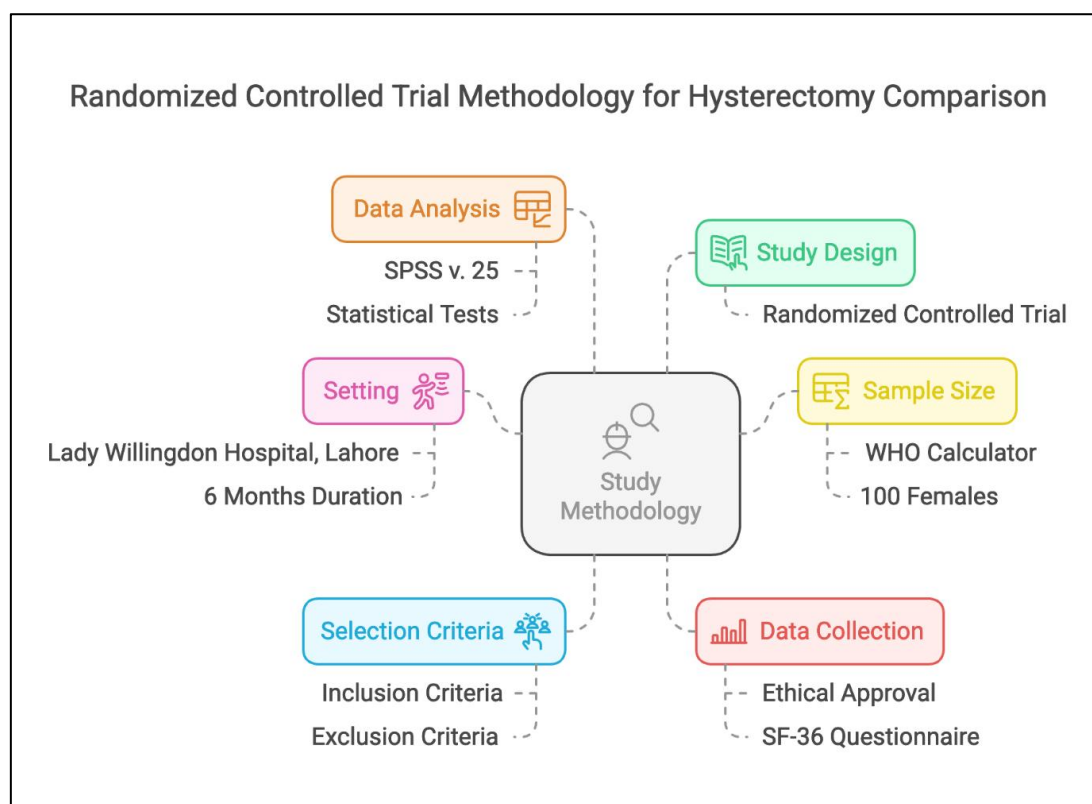


FIGURE 1: SCHEMATIC REPRESENTATION OF OVERALL STUDY

MATERIAL & METHODS

STUDY DESIGN AND SETTING

This study was conducted as a randomized controlled trial at Unit I, Department of Obstetrics & Gynecology, Lady Willingdon Hospital, Lahore. The study duration was six months after the approval of the synopsis.

SAMPLE SIZE, SAMPLING TECHNIQUE, AND SELECTION CRITERIA

A total of 100 females (50 in each group) were included, with the sample size calculated using the WHO sample size calculator (5% significance level, 80% study power). The expected satisfaction rates were 90% for vaginal hysterectomy (VH) and 65.5% for abdominal hysterectomy (AH). A non-probability, consecutive sampling technique was used.

SELECTION CRITERIA

Females aged 25-65 years, parity > 1, undergoing hysterectomy for abnormal uterine bleeding will be included. Whereas, females already diagnosed with malignancy or ovarian tumor (on medical record), uterine prolapse (on clinical examination), indication associated surgical procedures and uterine size > 300 cm³, descendent cervix at the level or bellow of mid-vagina, will be excluded.

DATA COLLECTION PROCEDURE

After approval from ethical review board, 100 females fulfilling the selection criteria will be enrolled in the study from gynecology wards. Informed consent will be taken. Demographics including name, age, BMI, marital status, parity, indication for hysterectomy, education, occupation, residence, socioeconomic status, number of vaginal deliveries, family history of hysterectomy will also be noted. Then females will be randomly divided in two groups by using lottery method. In group A, females will undergo vaginal hysterectomy under local anesthesia. In group B, females will undergo total abdominal hysterectomy under spinal anesthesia. Operative time and intraoperative loss will be noted. After procedure, females will be shifted to post-surgical wards and will be followed up there for 48 hours. After 48 hours, females will be discharged and will be followed up in OPD for one month. After one month, females will undergo physical examination and interview using the SF-36 questionnaire (functional capacity, physical aspect and pain) and an evaluation of the degree of satisfaction. If females will score <4, then patients will be labeled as satisfied (as per operational definition). Based on SF-36, quality of life score will also be assessed (as per operational definition).

DATA ANALYSIS

Data will be statistically analysed by using SPSS v. 25. Normality will be assessed by applying Shapiro-Wilk test. Quantitative variables like age, BMI, duration of surgery, intraoperative blood loss and SF-36 score, will be

presented as mean and standard deviation. Qualitative variables like marital status, parity, education, occupation, residence, socioeconomic status, number of vaginal deliveries, family history of hysterectomy and patients' satisfaction will be presented as frequency and percentage. Both groups will be compared for mean SF-36 score by using independent samples t-test and for patients' satisfaction by using chi-square test. P-value ≤ 0.05 will be kept as significant. Data will be stratified for age, BMI, marital status, parity, education, occupation, residence, socioeconomic status, number of vaginal deliveries, family history of hysterectomy, duration of surgery, and intraoperative blood loss. Post-stratification, both groups will be compared for mean SF-36 score by using independent samples t-test and for patients' satisfaction by using chi-square test in each stratum. P-value ≤ 0.05 will be kept as significant

RESULTS

The baseline characteristics of the study population are summarized in **Table 1**. The mean age of patients undergoing vaginal hysterectomy (VH) was 45.3 ± 6.5 years, while for those undergoing abdominal hysterectomy (AH), it was 46.2 ± 7.1 years. The p-value of 0.478 indicates no statistically significant difference in age distribution between the two groups. Similarly, the BMI of patients was comparable between the two groups, with a mean value of 27.8 ± 3.2 kg/m² for VH and 28.5 ± 3.5 kg/m² for AH ($p = 0.321$), suggesting that body mass index was not a confounding factor in this study.

Parity was also similar across both groups, with a mean parity of 3.4 ± 1.2 for VH and 3.6 ± 1.1 for AH ($p = 0.512$). The socioeconomic status of participants was classified as low, medium, or high, and distribution was similar in both groups ($p = 0.675$), indicating that socioeconomic differences were unlikely to affect surgical outcomes. Education levels were also comparable, with no significant difference observed in the proportion of

patients having no formal education, primary, secondary, or higher education (p = 0.804).

Overall, there were no statistically significant differences in the demographic and baseline clinical characteristics between the vaginal and abdominal hysterectomy groups. These findings indicate that both groups were well-matched at baseline, reducing the likelihood of bias affecting the comparative outcomes of the two surgical approaches. **Figure 2** provides a graphical representation of these baseline characteristics.

TABLE 1: BASELINE CHARACTERISTICS OF THE STUDY POPULATION

Characteristic	Vaginal Hysterectomy (n=50)	Abdominal Hysterectomy (n=50)	P- value
Age (years)	45.3 ± 6.5	46.2 ± 7.1	0.478
BMI (kg/m ²)	27.8 ± 3.2	28.5 ± 3.5	0.321
Parity (n)	3.4 ± 1.2	3.6 ± 1.1	0.512
Socioeconomic Status (Low/Medium/High)	15/25/10	18/24/8	0.675
Education (No formal/Primary/Secondary/Higher)	10/20/15/5	12/18/14/6	0.804

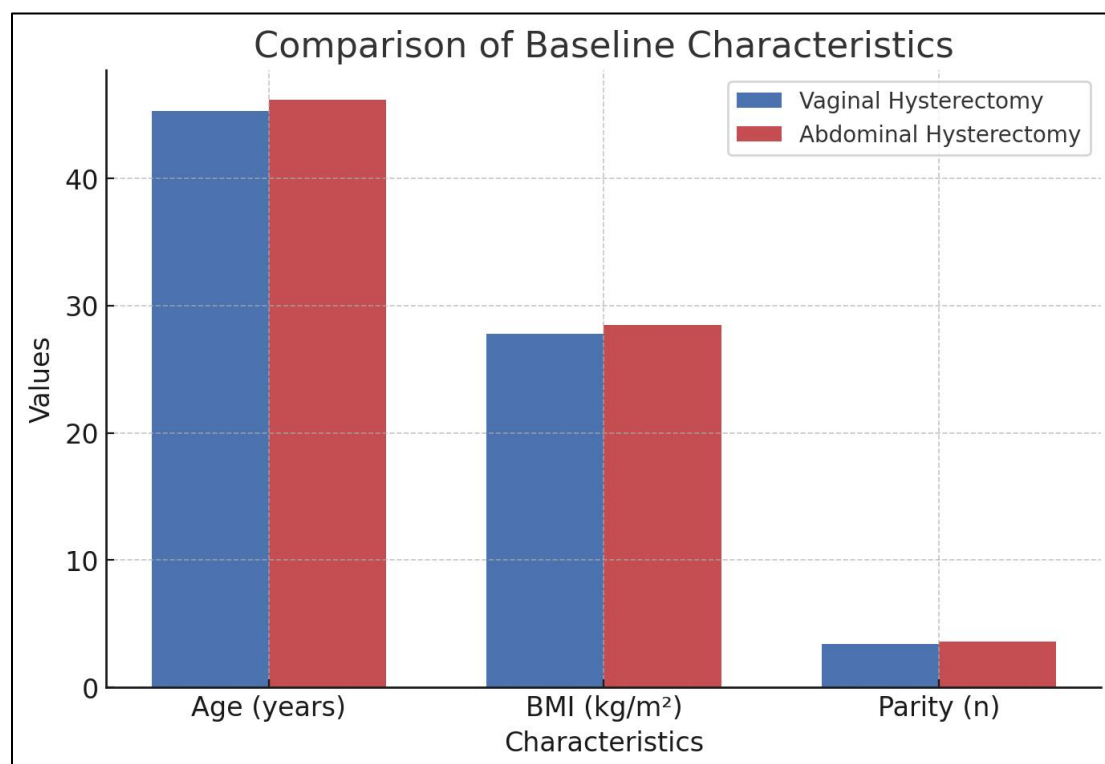


FIGURE 2: Comparison of Baseline Characteristics Between Vaginal and Abdominal Hysterectomy Patients

The intraoperative and postoperative outcomes of vaginal hysterectomy (VH) and abdominal hysterectomy (AH) are presented in **Table 2** and visually represented in **Figure 3**. The operative time was significantly lower in the VH group (75.3 ± 12.5 minutes) compared to the AH group (98.6 ± 15.2 minutes), with a p-value of <0.001 , indicating a statistically significant difference. Similarly, intraoperative blood loss was significantly lower in VH (210.5 ± 50.3 mL) than in AH (320.7 ± 65.1 mL, $p < 0.001$), suggesting a reduced risk of blood loss complications with the vaginal approach.

Postoperatively, patients undergoing VH had a significantly shorter hospital stay, averaging 2.3 ± 0.8 days, compared to 4.5 ± 1.1 days in the AH group ($p < 0.001$). This finding aligns with the reduced surgical invasiveness and faster recovery associated with vaginal hysterectomy. Furthermore, the pain score (SF-36 scale) was higher (indicating less pain) in the VH group (85.4

± 10.5) compared to AH (62.3 ± 12.8, p < 0.001), reinforcing the lower postoperative discomfort with the vaginal approach.

In terms of functional recovery, functional capacity scores were significantly higher in VH (92.1 ± 8.6) than in AH (70.5 ± 11.4, p < 0.001), indicating better physical function postoperatively. Similarly, physical aspect scores were superior in the VH group (97.2 ± 5.8) compared to AH (75.4 ± 9.3, p < 0.001), further supporting the advantages of vaginal hysterectomy over abdominal hysterectomy in terms of early mobility and physical well-being.

Overall, the results suggest that vaginal hysterectomy is associated with shorter operative time, reduced blood loss, faster postoperative recovery, lower pain levels, and better functional outcomes compared to abdominal hysterectomy. These findings emphasize the clinical benefits of preferring vaginal hysterectomy when feasible.

TABLE 2: INTRAOPERATIVE AND POSTOPERATIVE OUTCOMES

Outcome	Vaginal Hysterectomy (n=50)	Abdominal Hysterectomy (n=50)	P-value
Operative Time (minutes)	75.3 ± 12.5	98.6 ± 15.2	<0.001
Intraoperative Blood Loss (mL)	210.5 ± 50.3	320.7 ± 65.1	<0.001
Postoperative Hospital Stay (days)	2.3 ± 0.8	4.5 ± 1.1	<0.001
Pain Score (SF-36) (0-100)	85.4 ± 10.5	62.3 ± 12.8	<0.001
Functional Capacity Score (SF-36) (0-100)	92.1 ± 8.6	70.5 ± 11.4	<0.001
Physical Aspect Score (SF-36) (0-100)	97.2 ± 5.8	75.4 ± 9.3	<0.001

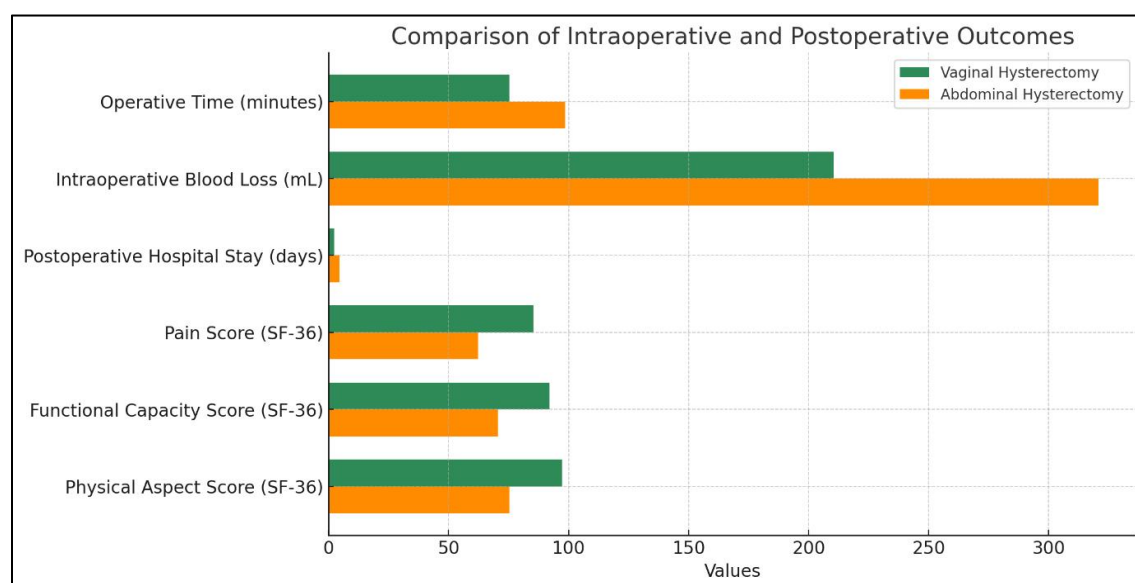


FIGURE 3: COMPARISON OF INTRAOPERATIVE AND POSTOPERATIVE OUTCOMES BETWEEN VAGINAL AND ABDOMINAL HYSTERECTOMY PATIENTS

The comparison of postoperative satisfaction and quality of life between vaginal hysterectomy (VH) and abdominal hysterectomy (AH) is summarized in **Table 3** and illustrated in **Figure 4**. The results indicate that patient satisfaction was significantly higher in the VH group (90.0%) compared to the AH group (65.5%, $p = 0.002$), suggesting that the less invasive nature and faster recovery associated with VH contribute to improved patient-reported outcomes.

The quality of life score (SF-36 scale) was also significantly higher in patients undergoing VH (88.2 ± 9.7) compared to those undergoing AH (68.1 ± 12.3 , $p < 0.001$). This suggests that patients who underwent VH experienced better physical, emotional, and functional well-being in the postoperative period.

Furthermore, the time required to return to normal activities was significantly shorter in the VH group (3.5 ± 1.2 weeks) compared to the AH group (5.8 ± 1.5 weeks, $p < 0.001$). This highlights the advantage of vaginal

hysterectomy in facilitating early mobility, quicker recovery, and overall improved postoperative rehabilitation.

Overall, these findings emphasize the superior patient satisfaction, enhanced quality of life, and faster recovery associated with vaginal hysterectomy compared to abdominal hysterectomy, reinforcing its preference as the surgical approach of choice when feasible.

Table 3: Postoperative Satisfaction and Quality of Life

Parameter	Vaginal Hysterectomy (n=50)	Abdominal Hysterectomy (n=50)	P-value
Patient Satisfaction (%)	90.0	65.5	0.002
Quality of Life Score (SF-36)	88.2 ± 9.7	68.1 ± 12.3	<0.001
Return to Normal Activities (weeks)	3.5 ± 1.2	5.8 ± 1.5	<0.001

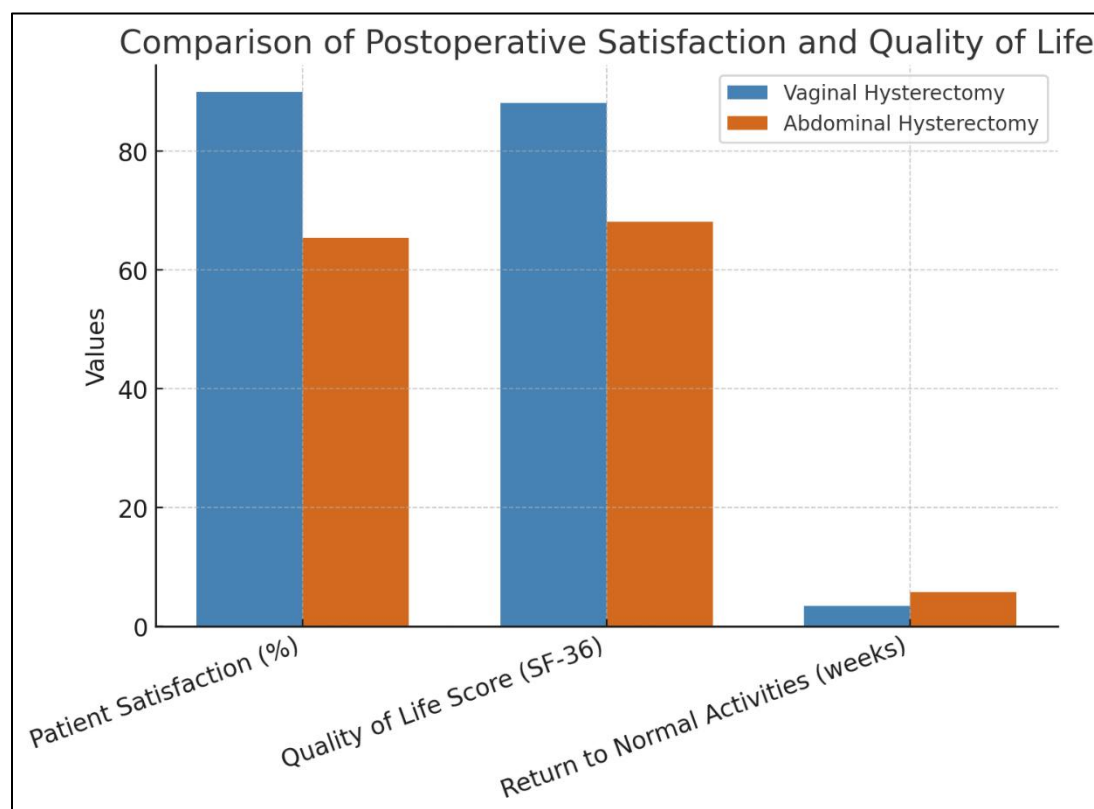


FIGURE 4: COMPARISON OF POSTOPERATIVE SATISFACTION AND QUALITY OF LIFE BETWEEN VAGINAL AND ABDOMINAL HYSTERECTOMY PATIENTS

DISCUSSION

The findings of this study provide significant insights into the comparative outcomes of vaginal hysterectomy (VH) and abdominal hysterectomy (AH), highlighting the advantages of the vaginal approach in terms of operative efficiency, recovery time, pain management, and overall patient satisfaction. The baseline characteristics between the two groups were comparable, with no statistically significant differences in age, BMI, parity, socioeconomic status, or education level. This ensures that the observed differences in outcomes can be attributed to the surgical approach.

Our results demonstrated that vaginal hysterectomy was associated with significantly shorter operative time and reduced intraoperative blood loss compared to abdominal hysterectomy ($p < 0.001$ for both). These findings align with previous studies, such as those by Silva-Filho et al. (2006) and

Fatima et al. (2018), which reported that VH is a less invasive procedure with reduced surgical duration and minimal blood loss, leading to better intraoperative outcomes [14] [15]. The shorter hospital stay in VH patients (2.3 ± 0.8 days vs. 4.5 ± 1.1 days, $p < 0.001$) further reinforces the well-documented advantages of VH in terms of early postoperative recovery and healthcare cost-effectiveness.

Pain management is a critical concern in post-hysterectomy recovery [17]. Our study found that VH patients reported significantly lower pain scores (85.4 ± 10.5) compared to AH patients (62.3 ± 12.8 , $p < 0.001$), further corroborating existing literature that suggests reduced postoperative pain in vaginal approaches due to the absence of a large abdominal incision. Furthermore, functional capacity and physical aspect scores (SF-36) were significantly higher in the VH group, indicating better postoperative mobility, improved quality of life, and faster return to normal activities.

One of the most critical findings of this study is the significantly higher patient satisfaction in the VH group (90.0%) compared to the AH group (65.5%, $p = 0.002$). Additionally, the quality of life score was superior in VH patients (88.2 ± 9.7) compared to AH patients (68.1 ± 12.3 , $p < 0.001$). These results suggest that vaginal hysterectomy not only provides better clinical outcomes but also improves long-term patient-reported well-being. The time required to resume normal activities was notably shorter in VH patients (3.5 ± 1.2 weeks) compared to AH patients (5.8 ± 1.5 weeks, $p < 0.001$), further demonstrating the reduced postoperative morbidity and quicker rehabilitation associated with VH.

Our findings are consistent with previous studies, such as those by Fatima et al. (2018) and Sajjad et al. (2021), which reported similar trends in postoperative satisfaction, quality of life, and functional recovery following VH. The SF-36 quality of life score findings align with research by Silva-Filho et al.

(2006), reinforcing the notion that vaginal hysterectomy offers superior patient-reported outcomes compared to abdominal hysterectomy [14] [15] [16].

However, despite these advantages, abdominal hysterectomy continues to be widely performed in clinical practice, particularly in cases where vaginal surgery is contraindicated due to enlarged uterine size, previous pelvic surgeries, or complex pathology [18, 19]. While VH offers numerous benefits, it may not always be feasible, necessitating careful patient selection to maximize surgical success and patient outcomes [20].

Based on our results, vaginal hysterectomy should be considered the preferred approach whenever feasible, given its association with lower surgical morbidity, shorter hospital stays, reduced pain, and superior postoperative recovery. Surgeons should assess patient eligibility for VH before opting for an abdominal approach. Additionally, increasing surgeon training in vaginal hysterectomy techniques may help expand its use and minimize unnecessary abdominal procedures.

Despite the strengths of this study, including its randomized controlled design and use of validated outcome measures (SF-36 score, patient satisfaction levels), some limitations must be acknowledged. The study was conducted at a single center, which may limit the generalizability of the findings. Additionally, long-term follow-up beyond one month was not included, which may have provided further insights into prolonged recovery and late-onset complications. Future research should focus on multi-center trials with extended follow-up periods to confirm and expand upon these findings.

CONCLUSION

This study provides strong evidence supporting vaginal hysterectomy as the preferred approach over abdominal hysterectomy for eligible patients. The

significant reductions in operative time, intraoperative blood loss, postoperative pain, and hospital stay, coupled with higher functional recovery and patient satisfaction, reinforce its superiority. These findings underscore the importance of patient selection and surgeon expertise in optimizing surgical outcomes and improving quality of life for hysterectomy patients.

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