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Article

Advancing Patient-Centered Outcomes in Ambulatory Gynecology: A Comparative Study of Office-Based and Hospital-Based Procedures in Managing Benign Gynecologic Conditions

Asia Khan[1]

1 University Hospitals, Birmingham, United Kingdom

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ABSTRACT

Background: Ambulatory gynecology has emerged as a transformative approach in managing benign gynecologic conditions by shifting procedures from hospitals to office-based settings. Despite its growing adoption, comparative evidence on patient-centered outcomes, procedural safety, and cost-effectiveness between these models remains limited, creating a gap in evidence-based clinical guidance. **Objective**: This study aimed to compare office-based and hospital-based procedures in the treatment of benign gynecologic conditions, focusing on patient satisfaction, recovery time, complication rates, and procedural costs to assess their effectiveness and clinical value. **Methods**: A comparative observational study was conducted among women (n = 56) undergoing minimally invasive treatment for benign gynecologic conditions such as abnormal uterine bleeding, leiomyoma, or endometrial polyps. Participants were identified through clinical records and invited to complete an online, anonymized survey assessing satisfaction, recovery, and complications. Inclusion criteria included adult women treated within the last six months, while those with suspected malignancy or emergency interventions were excluded. Ethical approval was obtained per the Declaration of Helsinki. Data were analyzed using SPSS v27, employing independent t-tests, chi-square tests, and effect size calculations. **Results**: Office-based procedures were associated with significantly higher satisfaction (4.64 ± 0.49 vs. 4.17 ± 0.70; p = 0.006), shorter recovery time (4.7 ± 1.6 vs. 7.4 ± 2.1 days; p < 0.001), and lower costs (USD 1,230 ± 210 vs. USD 2,870 ± 390; p < 0.001), with no increase in complication rates (7.1% vs. 10.7%; p = 0.64). **Conclusion**: Office-based gynecologic procedures offer a safe, cost-effective, and patient-centered alternative to hospital-based care for benign conditions, supporting their integration into routine practice to improve access, efficiency, and quality of care.

Keywords: Ambulatory Gynecology, Office-Based Procedures, Patient-Centered Outcomes, Benign Gynecologic Conditions, Minimally Invasive Surgery, Healthcare Costs, Postoperative Recovery

INTRODUCTION

Benign gynecologic conditions such as abnormal uterine bleeding, endometrial polyps, and leiomyoma are among the most prevalent concerns managed in gynecologic practice. Traditionally treated in hospital settings through surgical interventions, the management of these conditions has evolved with the advent of minimally invasive technologies, giving rise to ambulatory gynecology and office-based procedures. This shift is in line with a broader healthcare trend favoring outpatient care, primarily due to its cost efficiency, reduced waiting times, and potential for improved patient-centered outcomes. While studies have emphasized the growing inclination toward minimally invasive procedures, such as outpatient hysterectomies, there is limited comparative data evaluating the clinical effectiveness, safety profiles, and patient satisfaction levels between office-based and hospital-based management of benign gynecologic disorders (1). The lack of comprehensive comparative analyses creates a significant knowledge gap in determining the optimal care setting, particularly in terms of tailoring interventions to meet individual patient needs.

Existing literature demonstrates varied trends in the adoption of outpatient gynecologic procedures across demographics and healthcare systems. For instance, an analysis of hysterectomy

patterns from 2011 to 2013 found that outpatient hysterectomies increased for Black women but remained unchanged for White women, suggesting disparities in access to these services (2). Such findings underscore the importance of equitable healthcare delivery and point to systemic barriers that may influence procedure selection and outcomes. Furthermore, evidence indicates that the discharge destination after hospital-based surgeries plays a critical role in determining patient readmission rates. Older women discharged to home care or continued inpatient care exhibit significantly higher readmission risks compared to those discharged to self-care, highlighting the need for refined discharge planning strategies (3). These findings, combined with the increasing focus on patient-reported outcomes and the demand for efficient, personalized care pathways, form the basis for exploring the comparative merits of different procedural settings.

Office-based procedures offer a range of advantages, including reduced anxiety, faster recovery, and decreased postoperative complications, especially in elderly populations. Their accessibility and efficiency make them particularly suited to patients with uncomplicated conditions, potentially improving adherence to follow-up care and long-term management (4). Conversely, hospital-based procedures, while offering comprehensive surgical infrastructure and the ability to manage complex cases, may inadvertently expose patients to increased costs, overtreatment risks, and delayed recovery due to institutional protocols and reliance on traditional pain management approaches (5). A multimodal approach to analgesia, integrating nonopioid strategies, has been proposed to counteract these limitations and enhance the patient-centeredness of hospital care (6). Nevertheless, there remains an absence of robust comparative data to guide clinical decision-making in terms of balancing safety, resource utilization, and patient preferences across these settings.

Given these challenges, this study is designed to compare office-based and hospital-based interventions for the treatment of benign gynecologic conditions, with a specific focus on patient-reported outcomes, procedural safety, cost-effectiveness, and quality of recovery. By adopting a mixed-methods approach that integrates clinical metrics with qualitative feedback, the study aims to provide a nuanced understanding of how procedural setting influences overall care quality. The findings are expected to inform clinicians, administrators, and policymakers in developing stratified care models that prioritize both clinical efficacy and patient well-being. Ultimately, this research seeks to answer the central question: how do office-based and hospital-based procedures compare in delivering safe, cost-effective, and patient-centered care for women with benign gynecologic conditions?

MATERIALS AND METHODS

This observational comparative study evaluated patient-centered outcomes in women undergoing office-based versus hospital-based procedures for benign gynecologic conditions. A total of 56 women were included (n = 28 in each group), all of whom had undergone minimally invasive procedures for conditions such as abnormal uterine bleeding, endometrial polyps, or leiomyoma. Participants were identified retrospectively through clinical records from a university-affiliated tertiary hospital and associated ambulatory centers. Women aged 18 years or older were eligible for inclusion if they had received a confirmed benign gynecologic diagnosis and completed a relevant surgical intervention in the prior six months. Exclusion criteria included suspected malignancy, emergency surgical procedures, and inability to provide informed consent. All participants were invited to complete a structured online survey following their procedures. The survey link was sent via secure institutional email, and responses were collected anonymously using encrypted, GDPR-compliant survey software.

The primary outcomes assessed included patient satisfaction and time to return to normal activities, while secondary outcomes included self-reported procedural tolerance and out-of-pocket cost burden. The online questionnaire incorporated validated Likert-scale items and numerical rating scales adapted from existing patient-reported outcome tools, alongside open-ended fields for additional feedback. Complication rates and procedural classifications were corroborated through cross-verification with existing clinical records. Data integrity was ensured by linking self-reported responses with de-identified procedure logs to confirm inclusion criteria and reduce reporting bias. Ethical approval was obtained in accordance with the Declaration of Helsinki, and informed electronic consent was obtained from all participants through the online platform prior to survey initiation. Respondents were informed that participation was voluntary and that data would remain confidential and used solely for research purposes.

Statistical analysis was performed using SPSS version 27. Descriptive statistics were used to summarize patient characteristics and outcome measures. Independent t-tests and chi-square tests were applied to compare continuous and categorical variables, respectively, between the two groups. Effect sizes were calculated where applicable to assess clinical relevance, and significance was set at $p < 0.05$. Missing data were managed using listwise deletion, and subgroup analyses were performed to explore age-related recovery differences. The use of a hybrid approach—combining retrospective clinical record identification with prospective online survey assessment—allowed for both methodological rigor and participant convenience.

RESULTS

A total of 56 patients were included in the analysis, evenly divided into two groups: office-based procedures (n = 28) and hospital-based procedures (n = 28). Baseline demographic and clinical characteristics were comparable between groups ($p > 0.05$), ensuring the internal validity of outcome comparisons.

Office-based procedures demonstrated significantly higher patient satisfaction than hospital-based procedures. The mean satisfaction score on a 5-point Likert scale was 4.64 ± 0.49 in the office-based group versus 4.17 ± 0.70 in the hospital-based group ($t = 2.85$, $p = 0.006$). Procedural tolerance, assessed on a 10-point scale, also favored the office-based group (9.2 ± 1.1) compared to the hospital-based group (8.3 ± 1.4), with a statistically significant difference ($p = 0.018$) and a moderate

effect size (Cohen's d = 0.71), indicating a clinically relevant advantage.

The mean time to return to normal daily activities was significantly shorter in the office-based group (4.7 ± 1.6 days) compared to the hospital-based group (7.4 ± 2.1 days; p < 0.001). Post hoc analysis by age subgroup revealed that participants under 40 years of age in the office-based group recovered faster (mean = 4.2 days) than those aged 40 years and older (mean = 5.1 days; p = 0.041), indicating a potential interaction between age and recovery trajectory. Minor complications were reported in 7.1% (2/28) of office-based cases and 10.7% (3/28) of hospital-based cases, with no statistically significant difference between groups (p = 0.64). No major complications occurred in either group. These findings confirm the safety of both procedural settings when appropriate patient selection criteria are applied.

The mean total procedural cost was significantly lower in the office-based group (USD 1,230 ± 210) compared to the hospital-based group (USD 2,870 ± 390; p < 0.001). This cost difference remained significant after adjusting for patient age and procedure type, with an adjusted mean difference of USD -1,640 (95% CI: -1,880 to -1,400), indicating strong economic benefit without compromising clinical outcomes.

Table 1. Comparison of Patient-Reported Outcomes, Recovery Time, and Procedural Costs Between Office-Based and Hospital-Based Groups (n = 56)

Outcome	Office-Based (n = 28)	Hospital-Based (n = 28)	p-value
Satisfaction Score (1–5 scale)	4.64 ± 0.49	4.17 ± 0.70	0.006
Procedural Tolerance (1–10 scale)	9.2 ± 1.1	8.3 ± 1.4	0.018
Time to Resume Activities (days)	4.7 ± 1.6	7.4 ± 2.1	< 0.001
Total Procedural Cost (USD)	1,230 ± 210	2,870 ± 390	< 0.001

Table 2. Postoperative Complication Rates by Care Setting (n = 56)

Complication Type	Office-Based (n = 28)	Hospital-Based (n = 28)	p-value
Minor Complications (%)	7.1% (2 cases)	10.7% (3 cases)	0.64
Major Complications (%)	0%	0%	–

These results demonstrate that office-based procedures not only yield higher patient satisfaction and faster functional recovery but also substantially reduce healthcare costs, without increasing complication rates. The moderate effect sizes observed in satisfaction and tolerance, along with cost-effectiveness, support the clinical relevance and potential scalability of office-based interventions for suitable gynecologic cases.

DISCUSSION

The present study reinforces the emerging consensus that office-based procedures in ambulatory gynecology are not only feasible but offer distinct advantages over hospital-based interventions in managing benign gynecologic conditions. Consistent with earlier findings, the results demonstrate that patients undergoing office-based care reported significantly higher satisfaction, faster recovery, and comparable—if not lower—complication rates relative to those managed in hospital settings (1,2). These findings align with the broader trend toward decentralizing gynecologic surgical care, leveraging advances in minimally invasive techniques to create a more patient-centered, cost-effective model. In particular, the ability to provide care in familiar outpatient environments likely contributed to reduced patient anxiety and improved procedural tolerance, supporting previous reports on the psychological and physiological benefits of office-based interventions (3). Moreover, the faster return to routine activities observed in this study has substantial implications for improving quality of life and reducing indirect costs, especially among working women or caregivers.

In contrast to the benefits of office-based care, hospital-based procedures—though essential in complex or high-risk cases—were associated with longer recovery and higher procedural costs. While hospitals offer comprehensive infrastructure and immediate access to multidisciplinary support, these advantages did not translate into improved outcomes for the selected low-risk patients in our cohort. The lack of significant difference in minor complication rates suggests that, with proper patient selection, office-based procedures can match hospital-level safety while avoiding the institutional overhead and potential for overtreatment often associated with inpatient care (4). This supports findings from earlier research indicating that procedural setting does not necessarily determine safety but does impact cost and recovery trajectory (5). Additionally, the use of multimodal analgesia and non-opioid pain management—more common in ambulatory settings—may help explain improved postoperative tolerance and satisfaction in office-based groups, as has been highlighted in recent literature promoting individualized, non-opioid perioperative protocols (6).

Importantly, the study adds to the growing dialogue on health equity, echoing concerns raised by Brewster et al. regarding disparities in access to minimally invasive surgery (7). Our findings suggest that promoting office-based options may help address some of these gaps by removing logistical and economic barriers to care. However, equitable implementation will require proactive efforts to ensure that underserved populations, particularly racial and ethnic minorities, are not excluded from outpatient pathways due to systemic biases or resource limitations. It is also critical to consider the institutional and provider-level readiness to offer such services, including the availability of trained personnel, standardized protocols, and supportive policy frameworks. While the study offers several strengths—including its comparative design, use of validated patient-reported outcome measures, and hybrid data collection

strategy—it is not without limitations. The relatively small sample size may have limited the detection of rare complications or subgroup effects, and the reliance on self-reported data introduces the possibility of recall or response bias. The observational nature of the study precludes causal inference, and although efforts were made to validate clinical variables through record cross-verification, some degree of unmeasured confounding cannot be ruled out. Additionally, generalizability is constrained to women with uncomplicated benign gynecologic conditions who are eligible for outpatient procedures; findings may not extend to complex cases or populations with significant comorbidities.

Future research should focus on larger, multicenter randomized controlled trials that stratify patients by diagnosis, age, and comorbidity status to refine eligibility criteria for office-based care. Long-term follow-up studies examining recurrence rates, delayed complications, and quality-adjusted life years would enhance the evidence base and inform health policy. Moreover, implementation studies exploring barriers to outpatient gynecologic care, particularly in resource-limited settings, are essential to promote broader adoption of this model. Health systems should also invest in standardized discharge planning, remote follow-up tools, and culturally competent patient education to optimize outcomes across diverse patient populations. In conclusion, this study underscores the value of patient-centered ambulatory gynecology and supports its integration into routine practice as a safe, efficient, and clinically sound approach for managing benign gynecologic disease.

CONCLUSION

This study demonstrates that office-based procedures in ambulatory gynecology offer significantly higher patient satisfaction, faster recovery times, and lower healthcare costs compared to hospital-based interventions, without compromising procedural safety. These findings highlight the potential of office-based care models to enhance patient-centered outcomes in the management of benign gynecologic conditions, aligning with evolving healthcare priorities focused on efficiency, accessibility, and quality. Clinically, the results support broader adoption of minimally invasive, office-based approaches for appropriately selected patients, reducing the burden on hospital infrastructure and improving patient experience. From a research perspective, these outcomes warrant further investigation through larger, multicenter studies to establish standardized protocols, assess long-term effects, and explore equitable implementation strategies across diverse healthcare settings.

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