

Original article

Impact of Preoperative Anesthesia Assessment on Patient Satisfaction in Appendectomy

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ABSTRACT

Background: Patient satisfaction is an important indicator of anesthesia-care quality, particularly in urgent surgical pathways where limited preparation time may constrain communication. **Objective:** To assess patient satisfaction with preoperative anesthesia assessment among adults undergoing appendectomy and examine associations with selected patient and anesthetic characteristics. **Methods:** This single-center descriptive cross-sectional study included 164 adults with American Society of Anesthesiologists physical status I or II undergoing appendectomy under general or regional anesthesia at Nawaz Sharif Social Security Hospital, Lahore. Participants completed a nine-item, four-point satisfaction questionnaire. Results were summarized as n (%) and associations were examined using chi-square tests. **Results:** The mean age was 34.8 ± 12.6 years; 93 (56.7%) participants were female, 110 (67.1%) were ASA I, and 115 (70.1%) received general anesthesia. Overall, 120 (73.2%) were satisfied and 41 (25.0%) were extremely satisfied. Positive ratings were highest for professionalism (99.4%), consent information (98.2%), and safety and well-being (95.1%). Neutral responses were frequent for anxiety support (65.9%), opportunity to ask questions (62.8%), and explanation of risks and complications (58.5%). Overall satisfaction was not associated with gender, ASA status, or anesthesia type; safety ratings differed by gender ($\chi^2=6.697$, $df=2$, $p=0.035$). **Conclusion:** Satisfaction was high overall, but risk communication, opportunities for questions, and anxiety support warrant targeted quality improvement. The cross-sectional findings demonstrate associations and perceived care quality, not causal effects. **Keywords:** Anesthesia, Appendectomy, Patient satisfaction, Preoperative assessment, Communication, Anxiety

EDITORIAL INFORMATION

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INTRODUCTION

Patient-centered care requires attention not only to clinical outcomes but also to how patients experience communication, respect, safety, and involvement in decisions. Satisfaction with anesthesia is a multidimensional construct shaped by expectations, information provision, interpersonal care, perioperative symptoms, and the organization of services (1–7). Global ratings alone may conceal specific problems, particularly when patients report high overall satisfaction while identifying shortcomings in individual domains (1–3).

Preoperative anesthesia assessment is intended to identify perioperative risk, optimize clinical status, develop an anesthetic plan, obtain informed consent, and prepare the patient for surgery. The encounter also gives patients an opportunity to understand anesthesia, discuss concerns, and ask questions. Evidence from validated anesthesia-satisfaction instruments consistently identifies information, participation in decision-making, and the staff–patient relationship as central components of perceived quality (2–7). Inadequate communication may therefore affect confidence even when technical care is appropriate.

These issues may be especially relevant in appendectomy. Acute appendicitis is a frequent surgical emergency, and the limited interval between diagnosis and operation can restrict opportunities for

deliberation and psychological preparation (8). Patients may simultaneously face pain, uncertainty, fear of surgery, and concern about anesthesia. Preoperative anxiety is common across surgical populations and has been associated with demographic factors, previous experience, information needs, postoperative pain, anesthetic requirements, and recovery outcomes (9–13). Clear explanations and responsive communication are therefore clinically relevant components of the preoperative encounter.

Studies from different health systems have reported wide variation in satisfaction with perioperative anesthesia services (14–20). This variation partly reflects differences in patient populations, measurement tools, timing of assessment, and service organization. Research also shows that validated multidimensional instruments are preferable to untested global ratings because no validated questionnaires may overestimate satisfaction and reduce comparability (1–3). Virtual and clinic-based assessment models can support access and preparedness, but their value depends on communication quality and appropriate implementation (21,22).

The quality of preoperative communication depends on more than the amount of information delivered. Patients must be able to understand the proposed anesthetic technique, distinguish common side effects from serious risks, and recognize how preoperative instructions contribute to safety. Health literacy, language, pain, emotional distress, and the urgency of surgery may all affect comprehension. A patient-centered assessment therefore requires plain language, opportunities for clarification, and confirmation that key information has been understood. Previous anesthesia-satisfaction research indicates that information and involvement in decision-making are closely related to the way patients evaluate their overall experience (2,3,5–7). These elements are particularly important when the clinical encounter is brief and patients have little time to formulate questions before surgery.

Measurement also presents a methodological challenge because satisfaction is influenced by prior expectations and patients may hesitate to criticize professionals responsible for their care. Courtesy and social-desirability effects can produce very favorable global ratings even when item-level responses reveal unmet needs. The timing and mode of questionnaire administration, response options, and anonymity may therefore alter the observed level of satisfaction (1–3,7). Reporting separate domains can provide more actionable information than combining all responses into an invalidated total score. For anesthesia services, this distinction helps identify whether a generally positive experience coexists with specific weaknesses in explanation, emotional reassurance, or participation.

Evidence specifically describing the experience of appendectomy patients in Pakistan remains limited. Local assessment is important because expectations, language, urgency, staffing, and institutional processes can influence how patients interpret preoperative information. This study therefore assessed satisfaction with distinct components of preoperative anesthesia assessment among adults undergoing appendectomy at a tertiary hospital in Lahore and examined whether overall satisfaction varied by gender, ASA physical status, or anesthesia type. The study was designed to identify service strengths and potentially improvable domains rather than to estimate a causal effect of the assessment.

MATERIALS AND METHODS

A single-center descriptive cross-sectional study was conducted over four months at Nawaz Sharif Social Security Hospital, Lahore, Pakistan, and is reported in accordance with the STROBE principles for observational studies (23). Adults aged 18 years or older with American Society of Anesthesiologists (ASA) physical status I or II who underwent appendectomy under general or regional anesthesia and could provide informed consent were eligible. Patients who declined participation, had a communication barrier or documented psychiatric illness that prevented questionnaire completion, or had an incomplete record were excluded. A total of 164 eligible patients were enrolled using non-probability consecutive sampling.

A researcher-administered questionnaire recorded age, gender, ASA status, anesthesia type, and nine aspects of preoperative assessment: explanation of the procedure, preoperative instructions, risks and complications, professionalism, consent information, attention to safety and well-being, anxiety support, opportunity to ask questions, and overall satisfaction. Each item used four ordered responses: 1, not satisfied; 2, neutral; 3, satisfied; and 4, extremely satisfied. Questionnaires were checked for completeness before data entry. Because the instrument was locally structured rather than a fully

validated multidimensional scale, individual items and the single overall-satisfaction item were analyzed separately; no invalidated composite score was created (1–3).

Data were analyzed using IBM SPSS Statistics version 27.0. Age was summarized as mean $\pm$ standard deviation, and categorical variables as frequencies and percentages. Associations of the three-level overall-satisfaction response with gender, ASA status, and anesthesia type were assessed using chi-square tests. The association between gender and the safety and well-being item was examined as a secondary analysis. Two-sided $p < 0.05$ was considered statistically significant; findings from domain-level analyses were interpreted cautiously because of small response cells and multiple comparisons. Ethical approval was obtained from the Ethical Review Committee of the University of Lahore, and permission to conduct the study was obtained from University of Lahore Teaching Hospital and Research Centre (Ref. No.: DRC/DHPT028/09/25). Written informed consent was obtained from all participants. Participation was voluntary, confidentiality was maintained, and no personal identifiers were included in the study records.

RESULTS

All 164 included participants contributed complete demographic and questionnaire information. Their mean age was 34.8 ± 12.6 years. Ninety-three (56.7%) were female, 110 (67.1%) had ASA physical status I, and 115 (70.1%) received general anesthesia (Table 1).

Overall satisfaction was favorable: 120 (73.2%) participants were satisfied and 41 (25.0%) were extremely satisfied, while 3 (1.8%) selected the neutral response. Positive responses were most frequent for professionalism (163/164, 99.4%), consent information (161/164, 98.2%), and attention to safety and well-being (156/164, 95.1%). In contrast, neutral responses predominated for anxiety support (108/164, 65.9%), opportunity to ask questions (103/164, 62.8%), clarity of risks and complications (96/164, 58.5%), and explanation of the anesthesia procedure (86/164, 52.4%) (Table 2 and Figure 1).

Overall satisfaction was not associated with gender ($\chi^2=2.489$, $df=2$, $p=0.288$), ASA physical status ($\chi^2=1.244$, $df=2$, $p=0.537$), or anesthesia type ($\chi^2=0.510$, $df=2$, $p=0.775$). A secondary domain-level analysis identified an association between gender and ratings of attention to safety and well-being ($\chi^2=6.697$, $df=2$, $p=0.035$) (Table 3). Given the multiple domain comparisons and sparse response categories, this isolated result should be treated as exploratory.

Table 1. Demographic and clinical characteristics of participants

Characteristic	Category	n (%)
Age, years	Mean $\pm$ SD	34.8 $\pm$ 12.6
Gender	Male	71 (43.3)
	Female	93 (56.7)
ASA physical status	I	110 (67.1)
	II	54 (32.9)
Anesthesia type	General	115 (70.1)
	Regional	49 (29.9)

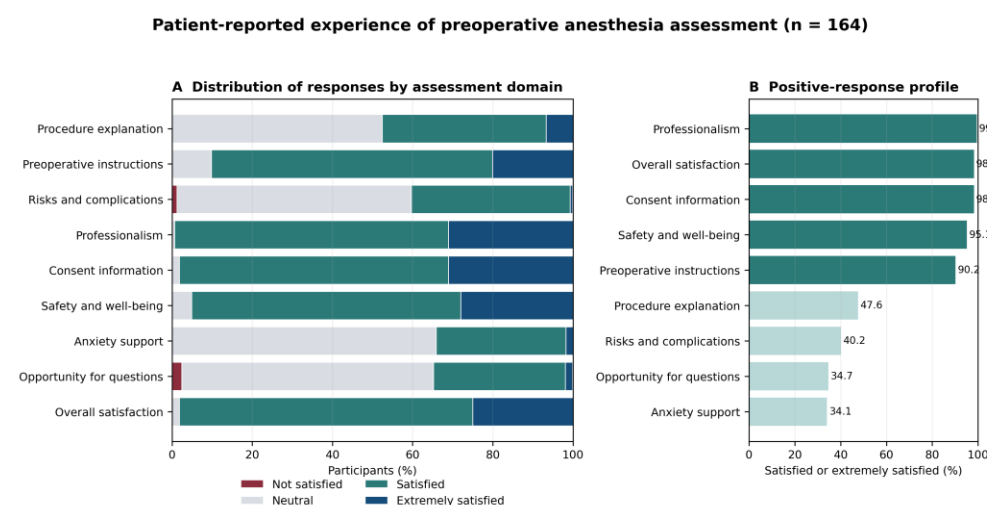
A total of 164 patients were assessed regarding their satisfaction with different domains of preoperative anaesthesia care. Overall, patient satisfaction was high, with 120 (73.2%) patients reporting satisfaction and 41 (25.0%) reporting extreme satisfaction, resulting in a combined satisfaction rate of 98.2%. The highest combined satisfaction was observed for professionalism (99.4%), followed by consent information (98.2%), preoperative instructions (90.2%), and safety and well-being (95.1%). However, relatively lower satisfaction was reported regarding explanation of the procedure, with 52.4% of patients expressing neutral responses, and information about risks and complications, where 58.5% remained neutral. Similarly, anxiety support (65.9%) and opportunity for questions (62.8%) received predominantly neutral responses, indicating potential areas for improvement in patient communication and emotional support. These findings suggest that although overall satisfaction with preoperative anaesthesia care was high, greater emphasis is needed on detailed procedural explanations, discussion of potential risks, anxiety management, and opportunities for patients to ask questions.

Table 2. Satisfaction with components of preoperative anesthesia assessment

Domain	Not satisfied, n (%)	Neutral, n (%)	Satisfied, n (%)	Extremely satisfied, n (%)
Explanation of procedure	0 (0.0)	86 (52.4)	67 (40.9)	11 (6.7)
Preoperative instructions	0 (0.0)	16 (9.8)	115 (70.1)	33 (20.1)
Risks and complications	2 (1.2)	96 (58.5)	65 (39.6)	1 (0.6)
Professionalism	0 (0.0)	1 (0.6)	112 (68.3)	51 (31.1)
Consent information	0 (0.0)	3 (1.8)	110 (67.1)	51 (31.1)
Safety and well-being	0 (0.0)	8 (4.9)	110 (67.1)	46 (28.0)
Anxiety support	0 (0.0)	108 (65.9)	53 (32.3)	3 (1.8)
Opportunity for questions	4 (2.4)	103 (62.8)	54 (32.9)	3 (1.8)
Overall satisfaction	0 (0.0)	3 (1.8)	120 (73.2)	41 (25.0)

Chi-square analysis was performed to assess the association of demographic and clinical factors with patient satisfaction regarding preoperative anaesthesia care. No statistically significant association was observed between overall satisfaction and gender ($\chi^2 = 2.489$, $p = 0.288$), ASA physical status ($\chi^2 = 1.244$, $p = 0.537$), or type of anaesthesia ($\chi^2 = 0.510$, $p = 0.775$). However, a statistically significant association was found between gender and satisfaction with safety and well-being ($\chi^2 = 6.697$, $p = 0.035$). These findings suggest that overall patient satisfaction was not significantly associated with the assessed demographic and clinical factors, whereas perceptions of safety and well-being differed significantly by gender.

Figure 1. Patient-reported experience across nine domains of preoperative anesthesia assessment. Panel A displays the full four-category response distribution. Panel B ranks the combined proportion reporting satisfied or extremely satisfied. Values are based on 164 participants; small deviations from 100% reflect rounding.



The figure shows a marked contrast between interpersonal-professional domains and participatory communication. Positive ratings reached 99.4% for professionalism, 98.2% for consent information, and 95.1% for safety and well-being, but only 47.6% for explanation of the procedure, 40.2% for risks and complications, 34.1% for anxiety support, and 34.7% for opportunity to ask questions.

DISCUSSION

This study found high overall satisfaction with preoperative anesthesia assessment among adults undergoing appendectomy, alongside a more differentiated domain profile. Nearly all participants rated professionalism, consent information, and attention to safety positively, whereas most selected neutral responses for anxiety support, opportunities to ask questions, and explanation of risks. Overall satisfaction did not vary significantly by gender, ASA physical status, or anesthesia type. The isolated gender association for safety ratings should be interpreted as exploratory because it arose among several domain-level comparisons and included sparse categories.

The coexistence of favorable overall ratings and less favorable item-level responses is consistent with the multidimensional nature of satisfaction. Systematic and psychometric studies have shown that global ratings are often positively skewed and may obscure deficiencies in information, involvement, continuity, and emotional support (1–7). The present findings reinforce the value of reporting individual domains rather than relying on a total or single global assessment. They also show why the result should not be interpreted as evidence that the assessment itself caused high satisfaction: all participants received routine assessment, and neither a comparator nor a pre-assessment measure was available.

The overall positive response in this study was higher than proportions reported in several African cross-sectional studies, where satisfaction ranged from approximately one-half to three-quarters of participants (15–18), but was comparable with reports of very high satisfaction in tertiary anesthesia services (19,20). Differences may reflect case mix, timing of measurement, expectations, health-system context, questionnaire design, and interviewer administration. Direct numerical comparison is therefore limited, particularly because this study used a brief locally structured questionnaire rather than a fully validated instrument such as the Leiden Perioperative Care Patient Satisfaction questionnaire (2) or another psychometrically tested anesthesia-specific measure (1,3).

Information provision and interpersonal communication are repeatedly identified as important correlates of anesthesia satisfaction (2,4–7,14). The high rating of consent information in the present study suggests that formal consent processes were generally viewed positively; however, neutral ratings for explanation of the procedure and risks indicate that signing or receiving a consent form may not guarantee active understanding. Similarly, low positive ratings for opportunities to ask questions and anxiety support suggest that communication may have been clinician-directed rather than dialogic. In the time-constrained setting of appendectomy, brief structured explanations, confirmation of understanding, and an explicit invitation to raise concerns may be practical quality-improvement targets.

Preoperative anxiety is influenced by uncertainty, expected pain, previous experiences, perceived loss of control, and limited information (9–13). Although this study did not measure anxiety with a validated scale, the satisfaction item concerning anxiety support identified a potential weakness in perceived care. Future evaluations could use the Amsterdam Preoperative Anxiety and Information Scale or another validated instrument and examine whether communication interventions improve both anxiety and satisfaction (9–11). The potential contribution of telemedicine or dedicated clinics is relevant to service planning, but these models were not evaluated here and should not be inferred from the present data (21,22).

The study has several strengths, including complete reporting for 164 appendectomy patients, assessment of multiple components of the preoperative encounter, and internally consistent demographic totals. Its limitations are important. The single-center cross-sectional design precludes causal inference and limits generalizability. Consecutive non-probability recruitment may introduce selection bias, while researcher administration may increase courtesy and social-desirability bias. The questionnaire was not reported as a fully validated instrument, and its four response categories may compress patient experience. The timing of questionnaire administration was not documented in the source manuscript. Potential confounders such as education, previous anesthesia, urgency, surgical approach, waiting time, postoperative symptoms, and language were unavailable. Sparse cells, multiple comparisons, and the absence of adjusted analysis further limit the inferential findings. These constraints mean that the study is best interpreted as a service-level description that generates quality-improvement hypotheses.

Clinically, the findings support preservation of professional and safety-focused practice while strengthening patient participation. A standardized communication checklist could ensure that the anesthetic plan, relevant risks, fasting instructions, postoperative expectations, and opportunities for questions are addressed consistently. Subsequent multicenter studies should use validated measures, prespecify primary outcomes, document assessment timing, and evaluate effect sizes and confounder-adjusted associations.

CONCLUSION

Adults undergoing appendectomy reported high overall satisfaction with preoperative anesthesia assessment, particularly regarding professionalism, consent information, and attention to safety. Neutral responses were nevertheless common for anxiety support, risk explanation, procedural explanation, and opportunities to ask questions, identifying specific areas for service improvement. Overall satisfaction was not associated with gender, ASA physical status, or anesthesia type, and the observed gender difference in safety ratings requires confirmation. These cross-sectional findings characterize patient experience but do not establish a causal effect of preoperative assessment on satisfaction.

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