

Impact of Anesthesiologist-Parent Communication on Postoperative Satisfaction and Perceived Quality of Care in pediatric surgery cases

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Received: 11 June 2026; Revised: 20 June, 2026; Accepted: 1st July, 2026; Available Online: 15 July, 2026

ABSTRACT

Background: The quality of communication between anesthesiologists and parents plays an important role in family-centered pediatric perioperative care. Effective communication helps reduce parental anxiety, improves understanding of anesthetic management, and enhances satisfaction with healthcare services.

Objectives: To determine the impact of anesthesiologist–parent communication on parental perioperative satisfaction in pediatric surgery and to assess the association between communication quality and parental satisfaction.

Study Design & Setting: A cross-sectional analytical study was conducted in the Department of Anesthesiology and Pediatric Surgery, Bahria Orchard Hospital Lahore, from 10 March 2026 to 10 June 2026.

Methodology: A total of 120 parents or guardians of children aged 1–12 years undergoing elective pediatric surgery under general anesthesia were enrolled using non-probability consecutive sampling. Data were collected using a structured questionnaire comprising demographic characteristics, six communication domains assessed on a 5-point Likert scale, and overall parental satisfaction. Data were analyzed using SPSS version 25. Independent-sample *t*-test, Chi-square test, and Pearson's correlation were applied, with a *p*-value <0.05 considered statistically significant.

Results: The mean parental age was 33.8 ± 6.9 years, and the mean overall satisfaction score was $82.1 \pm 10.8\%$. Overall, 77.5% of parents were categorized as satisfied, while 89.2% would recommend the anesthesia service to others. Parents with prior surgical experience and those whose children had ASA physical status I demonstrated significantly higher satisfaction scores ($p=0.024$ and $p=0.044$, respectively). Education level ($p=0.043$) and residence ($p=0.027$) were significantly associated with parental satisfaction. A strong positive correlation was observed between total communication score and overall satisfaction ($r=0.731$, $p<0.001$).

Conclusion: Effective anesthesiologist–parent communication was significantly associated with greater parental perioperative satisfaction. Enhancing communication practices may improve family-centered perioperative care and the overall quality of anesthesia services in pediatric surgical patients.

Keywords: Anesthesiologist, communication, parent, pediatric surgery, perioperative satisfaction

How to cite this article: Saleem A, Zaidi IA, Fida W, Israr F. Impact of Anesthesiologist-Parent Communication on Postoperative Satisfaction and Perceived Quality of Care in pediatric surgery cases. *Int J Drug Deliv Technol.* 2026;16(72s): 1569-1576. DOI: 10.25258/ijddt.16.72s.174

Source of support: Nil.

Conflict of interest: None

INTRODUCTION

Patient experience is now seen as a key part of healthcare quality, along with clinical outcomes and efforts to keep patients safe. In paediatric surgical settings, children are frequently too young to express their concerns or satisfaction, rendering parental perception a vital measure of the quality of perioperative care.² Parents who feel informed and at ease lead to better cooperation, less stress, and a better overall surgical experience for both the child and the healthcare team.³ In developing countries like Pakistan, where health systems struggle with a lack of resources and changing public trust, good communication

between medical staff and families is even more important.⁴ Anaesthesiologists are a key part of the perioperative team, but their role in shaping the parent's overall experience is often not recognised. They are often the first to discuss anaesthesia procedures, outline possible risks, and reassure parents that their child will be safe.⁵ The way anaesthesiologists talk to parents directly affects how happy and confident they are in the care their child is getting. Ehwerhemuepha and colleagues conducted a significant multicenter study that revealed the quality of communication between anaesthesiologists and parents as the most significant predictor of parents' likelihood to recommend a surgical facility, exceeding postoperative

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outcomes like pain or nausea (OR 0.23; 95% CI 0.09–0.58).⁶ This finding emphasises that interpersonal communication is as crucial to perceived care quality as technical proficiency. However, studies from Pakistan show that there are still problems with effective communication. A provincial survey from Sindh showed that paediatric anaesthesia services are still not reliable. There isn't enough preoperative counselling, and anaesthesia residents don't get enough training in how to talk to patients.⁷ High patient volumes, time constraints, and the absence of structured parent-education protocols significantly hinder meaningful engagement. Because of this, a lot of parents go into surgery not fully understanding it, having unrealistic expectations, and being more anxious.⁸ Cultural and psychosocial factors make things even more complicated. Parents in Pakistan often think that anaesthesia is the scariest part of surgery because they think that "putting a child to sleep" is dangerous or out of control.^{9,10} Structured preoperative communication programs, like the ones used at The Children's Hospital in Lahore, have also been shown to lower stress and make induction easier.¹¹ Even though these results are encouraging, there isn't a lot of local research in Pakistan that looks at the quantitative link between anesthesiologist-parent communication and parental perioperative satisfaction. Most current studies assess overall satisfaction with anaesthesia but do not distinguish communication as a separate domain. 7 A systematic evaluation of communication quality—encompassing empathy, clarity of information, and postoperative guidance—may facilitate the identification of actionable areas for enhancement. The current study seeks to assess the impact of anesthesiologist-parent communication on parental satisfaction during paediatric surgery in a Pakistani tertiary-care context. By filling this gap in research, the results are expected to help with things like structured communication checklists, orientation sessions, and empathy-training modules for anaesthesia residents. These things will improve family-centered care and patients' trust in paediatric surgical services. The study was conducted to assess the impact of anesthesiologist-parent communication on postoperative parental satisfaction and perceived quality of care in pediatric surgery cases. It also evaluated the association of communication quality and parental characteristics with satisfaction outcomes and compared satisfaction between structured preoperative communication and routine verbal counseling.

METHODS

The A cross-sectional analytical study was conducted in the Department of Anesthesiology and Pediatric Surgery, Bahria International Hospital, Lahore, over a period of six months after approval of the synopsis by CPSP and the Institutional Ethical Review Committee. A sample of 120 parents was calculated using the WHO sample size calculator with a 95% confidence level, 5% margin of error, and an expected parental satisfaction rate of 77.7%. Participants were recruited using a non-probability

consecutive sampling technique.³ Parents or legal guardians of children aged 1–12 years undergoing elective pediatric surgery under general anesthesia, classified as ASA physical status I or II, and willing to provide informed consent and complete the questionnaire in Urdu or English were included. Parents of children undergoing emergency surgery or classified as ASA physical status III or above, those who refused consent, cases requiring postoperative ICU admission, and parents unable to complete the questionnaire because of language, cognitive, or emotional limitations were excluded.

After obtaining approval from the Institutional Ethical Review Board and CPSP, data were collected from the Department of Anesthesiology and Pediatric Surgery, Bahria International Hospital, Lahore. Eligible parents or guardians were recruited on the day of surgery after written informed consent was obtained. The anesthesiologist provided routine preoperative counseling regarding the anesthesia plan, induction process, possible risks, expected recovery, and postoperative care in either Urdu or English according to parental preference. Following surgery, once the child was clinically stable in the Post-Anesthesia Care Unit (PACU) or ward within 6–24 hours, parents completed a structured questionnaire under the supervision of the researcher. The questionnaire consisted of demographic information and communication-related items assessing clarity of information, empathy, parental involvement, postoperative guidance, and overall satisfaction using a 5-point Likert scale. Mean domain scores were calculated, and an overall satisfaction score of $\geq 80\%$ was considered satisfactory. Data were entered and analyzed using SPSS version 25.0. Quantitative variables were presented as mean $\pm$ standard deviation, while categorical variables were presented as frequencies and percentages. The independent-sample t-test was used to compare mean satisfaction scores between groups, the Chi-square test was applied to determine associations between categorical variables, and Pearson's correlation was used to assess the relationship between communication scores and parental satisfaction. A p-value of <0.05 was considered statistically significant.

RESULTS

The The study included 120 parents/guardians of children undergoing elective pediatric surgery. Most respondents were females (61.7%), mothers (57.5%), had secondary level education (32.5%), had no prior surgical experience with their child (65.0%), and belonged to urban areas (59.2%). More than half of the children were males (56.7%), and the majority were classified as ASA physical status I (68.3%), as given in Table 1.

Table 1. Baseline Characteristics of Parents and Children (n = 120)

Variables	Type	n (%)
Parent Gender	Male	46 (38.3)
	Female	74 (61.7)

Education Level	Illiterate	14 (11.7)
	Primary	24 (20.0)
	Secondary	39 (32.5)
	Graduate	31 (25.8)
	Postgraduate	12 (10.0)
Relationship to Child	Mother	69 (57.5)
	Father	45 (37.5)
	Guardian	6 (5.0)
Prior Surgical Experience	Yes	42 (35.0)
	No	78 (65.0)
Residence	Urban	71 (59.2)
	Rural	49 (40.8)
Child Gender	Male	68 (56.7)
	Female	52 (43.3)
ASA Physical Status	I	82 (68.3)
	II	38 (31.7)

The mean age of the parents was 33.8 ± 6.9 years, while the mean age of the children was 6.4 ± 3.1 years. The average duration of surgery was 72.5 ± 24.8 minutes. The mean total communication score was 24.6 ± 3.9 , and the mean overall satisfaction score was $82.1 \pm 10.8\%$, as given in Table 2.

Table 2. Descriptive Statistics of Continuous Variables (n = 120)

Variable	Mean $\pm$ SD
Parent age (years)	33.8 ± 6.9
Child age (years)	6.4 ± 3.1
Duration of surgery (minutes)	72.5 ± 24.8
Total communication score	24.6 ± 3.9
Overall satisfaction score (%)	82.1 ± 10.8

Inguinal hernia repair was the most frequently performed procedure (23.3%), followed by circumcision (21.7%), orchidopexy (15.8%), appendectomy (15.0%), hypospadias repair (11.7%), and other elective procedures (12.5%), as given in Table 3.

Table 3. Distribution of Type of Surgery (n = 120)

Type of Surgery	n (%)
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Inguinal hernia repair	28 (23.3)
Circumcision	26 (21.7)
Orchidopexy	19 (15.8)
Appendectomy	18 (15.0)
Hypospadias repair	14 (11.7)
Other elective procedures	15 (12.5)

Among the communication domains, empathy and reassurance achieved the highest mean score (4.33 ± 0.69), followed by clarity and completeness of information (4.28 ± 0.73), availability and approachability (4.21 ± 0.74), explanation about anesthesia and recovery (4.17 ± 0.81), inclusion and respect toward parents (4.12 ± 0.78), and postoperative guidance and instructions (4.05 ± 0.85), as given in Table 4.

Table 4. Communication Domain Scores (n = 120)

Communication Domain	Mean $\pm$ SD
Clarity and completeness of information	4.28 ± 0.73
Explanation about anesthesia and recovery	4.17 ± 0.81
Empathy and reassurance	4.33 ± 0.69
Inclusion and respect toward parents	4.12 ± 0.78
Postoperative guidance and instructions	4.05 ± 0.85
Availability and approachability	4.21 ± 0.74

Regarding overall parental satisfaction, 52.5% of the parents were satisfied and 28.3% were very satisfied with anesthesiologist-parent communication, while only 7.5% reported dissatisfaction. Most parents (89.2%) indicated that they would recommend the anesthesia service to others. Based on the predefined satisfaction criteria, 77.5% of parents were categorized as satisfied and 22.5% as not satisfied, as given in Table 5.

Table 5. Overall Parental Satisfaction (n = 120)

Variables	Type	n (%)
Overall Satisfaction	Very dissatisfied	2 (1.7)
	Dissatisfied	7 (5.8)
	Neutral	14 (11.7)
	Satisfied	63 (52.5)
	Very satisfied	34 (28.3)
Recommendation of anesthesia service	Yes	107 (89.2)
	No	13 (10.8)
Overall Satisfaction Category	Satisfied	93 (77.5)
	Not satisfied	27 (22.5)

Parents with prior surgical experience reported significantly higher mean satisfaction scores than those without prior surgical experience (85.0 ± 9.2 vs. 80.5 ± 11.3 ; $p=0.024$). Similarly, parents of children with ASA

physical status I demonstrated significantly higher satisfaction scores compared with those whose children had ASA physical status II (83.4 ± 10.2 vs. 79.1 ± 11.7 ; $p=0.044$), as given in Table 6.

Table 6. Comparison of Mean Overall Satisfaction Score According to Study Variables (n = 120)

Score According to Study Variables (n = 126)				
Variable	n	Mean ± SD	t-value	p-value
Prior Surgical Experience				
Yes	42	85.0 ± 9.2	2.29	0.024
No	78	80.5 ± 11.3		
ASA Physical Status				
I	82	83.4 ± 10.2	2.04	0.044
II	38	79.1 ± 11.7		

A statistically significant association was observed between education level and overall satisfaction category ($p=0.043$), with satisfaction increasing as the educational level improved. Residence was also significantly associated with parental satisfaction ($p=0.027$), with parents from urban areas demonstrating higher satisfaction compared with those from rural areas, as given in Table 7.

Table 7. Association of Study Variables with Overall Satisfaction Category (n = 120)

Variable	Satisfied n (%)	Not Satisfied n (%)	χ^2	p- value
Education Level				
Illiterate	8 (57.1)	6 (42.9)	9.84	0.043
Primary	17 (70.8)	7 (29.2)		
Secondary	30 (76.9)	9 (23.1)		
Graduate	27 (87.1)	4 (12.9)		
Postgraduate	11 (91.7)	1 (8.3)		
Residence				
Urban	60 (84.5)	11 (15.5)	4.91	0.027
Rural	33 (67.3)	16 (32.7)		

A strong positive correlation was observed between the total communication score and the overall satisfaction score ($r=0.731$, $p<0.001$), indicating that better anesthesiologist-parent communication was associated with higher parental satisfaction, as given in Table 8.

Table 8. Correlation Between Total Communication Score and Overall Satisfaction Score (n = 120)

Variables	Pearson's r	p-value
Total communication score vs. Overall satisfaction score	0.731	<0.001

DISCUSSION

Effective communication between anesthesiologists and parents is an essential component of family-centered pediatric perioperative care. Clear explanations regarding anesthesia, perioperative procedures, potential risks, and postoperative recovery help reduce parental anxiety and improve confidence in the healthcare team.¹² High-quality communication has been associated with greater parental satisfaction and better perception of healthcare services. However, communication practices vary among institutions, and evidence from Pakistan remains limited.¹³ Therefore, this study was conducted to evaluate the impact of anesthesiologist-parent communication on parental perioperative satisfaction in pediatric surgery.

The present study evaluated the impact of anesthesiologist-parent communication on parental perioperative satisfaction in pediatric surgery. The mean parental age was 33.8 ± 6.9 years, mean child age was 6.4 ± 3.1 years, and the mean overall satisfaction score was $82.1 \pm 10.8\%$. Overall, 77.5% of parents were categorized as satisfied, and a strong positive correlation was observed between communication and satisfaction ($r=0.731$, $p<0.001$). Parents with previous surgical experience and those whose children had ASA physical status I reported significantly higher satisfaction ($p=0.024$ and $p=0.044$, respectively), while education level ($p=0.043$) and residence ($p=0.027$) were also significantly associated with satisfaction. Rehman et al. (2024) reported that only 46% of parents had high satisfaction, while 28% had moderate and 26% had low satisfaction during child hospitalization in a tertiary care hospital in Karachi. Compared with their findings, the present study demonstrated a considerably higher satisfaction rate of 77.5%.¹⁴

Sohail et al. (2022) reported a mean child age of 7.7 ± 5.5 years, mean maternal age of 35.1 ± 7.5 years, mean duration of surgery of 45 ± 13 minutes, and a mean parental treatment satisfaction score of 6.67 ± 0.7 during day-care pediatric surgical procedures. Similarly, the present study included children of comparable age (6.4 ± 3.1 years) and parents with a mean age of 33.8 ± 6.9 years. Although the mean duration of surgery in the current study was longer (72.5 ± 24.8 minutes), parental satisfaction remained high ($82.1 \pm 10.8\%$), suggesting that effective perioperative communication may have minimized the adverse impact of longer procedures on parental satisfaction.¹⁵ Munir et al. (2025) found that most respondents were females (55.9%), and communication (85%) and professionalism (88%) received the highest satisfaction scores. Significant associations were observed between satisfaction and age, education, and socioeconomic status. These findings are consistent with the present study, in which females constituted 61.7% of participants and education level was significantly associated with satisfaction ($p=0.043$). Likewise, communication domains such as empathy and reassurance (4.33 ± 0.69) and clarity of information (4.28 ± 0.73) achieved the highest mean scores,

emphasizing the importance of effective provider-parent communication.¹⁶

Fatima et al. (2025) demonstrated that parental presence during anesthesia induction significantly reduced parental anxiety compared with the control group (median anxiety 56.7 vs. 75.0; $p=0.001$), whereas demographic variables had no significant influence on anxiety levels. Although parental anxiety was not measured in the present study, the observed high satisfaction level and strong correlation between communication and satisfaction ($r=0.731$, $p<0.001$) support the concept that improved interaction and parental involvement during the perioperative period positively influence the overall parental experience.¹⁷ Admass et al. (2021) reported an overall parental satisfaction rate of 77.7% (95% CI: 72.3–82.4%), which is almost identical to the 77.5% satisfaction observed in the present study. They also identified male sex, urban residence, employment, absence of parental anxiety, and premedication as significant predictors of higher satisfaction. Similarly, urban residence was significantly associated with satisfaction in the current study ($p=0.027$), supporting the influence of sociodemographic characteristics on parental perceptions of anesthesia services.^{3,17}

Leonardsen et al. (2025) reported very high parental agreement regarding understandable information (96.4–97.4%), adequate responses to questions (94.6–97.6%), respectful treatment (96.4–97.6%), and attention to parental concerns (93.8–94.7%). However, relatively lower satisfaction was reported regarding explanations about postoperative recovery and anesthesia emergence. Comparable findings were observed in the present study, where empathy and reassurance, clarity of information, and availability of anesthesiologists received the highest mean scores, whereas postoperative guidance obtained the lowest communication score (4.05 ± 0.85), indicating that discharge counseling remains an area requiring improvement.² Claus et al. (2021) qualitatively demonstrated that parents valued reassurance, understandable communication, inclusion in decision-making, teamwork, and detailed preparation for surgery and recovery. Their findings closely support the results of the present study, in which communication domains including clarity of information, empathy, parental inclusion, postoperative guidance, and availability all achieved favorable scores and were strongly associated with overall parental satisfaction.¹⁸ Ullah et al. (2025) reported a mean parental satisfaction of $75.76\pm15.63\%$, with 71.8% of parents being highly satisfied. They found no statistically significant association between satisfaction and gender, child's age, diagnosis, socioeconomic status, or occupation, although parental age and education showed a trend toward higher satisfaction. Similarly, the present study demonstrated a high satisfaction rate of 77.5%, while education level showed a statistically significant association with satisfaction ($p=0.043$), indicating that educational status may influence parents' expectations and perception of perioperative communication.¹⁹

Hira et al. (2022) found that 60.7% of patients were satisfied with anesthesia services, whereas 39.3% were dissatisfied. They reported no significant association between satisfaction and demographic characteristics but emphasized the importance of improving communication, perioperative counseling, and postoperative follow-up. The current study demonstrated a higher satisfaction rate (77.5%) and identified significant associations with education level and residence. Furthermore, the strong positive correlation between communication and satisfaction ($r=0.731$, $p<0.001$) further reinforces the critical role of effective anesthesiologist–parent communication in improving perioperative experiences.²⁰ Shafer et al. (2018) identified parental anxiety, parental presence during anesthesia induction, sedative premedication, child social functioning, and language as significant predictors of parental satisfaction. Multivariable analysis demonstrated that lower parental anxiety significantly increased induction satisfaction (OR=0.975; 95% CI: 0.957–0.994) and total satisfaction (OR=0.968; 95% CI: 0.943–0.993).²¹ Although these variables were not directly evaluated in the present study, the strong positive correlation between communication quality and satisfaction supports their conclusion that interventions aimed at improving communication and reducing parental anxiety are likely to enhance parental satisfaction with pediatric anesthesia care.

STUDY LIMITATIONS

This was a single-center study with a relatively small sample size, which may limit the generalizability of the findings. Parental satisfaction was assessed using self-reported responses, making the results susceptible to response bias. In addition, satisfaction was measured during the immediate postoperative period without long-term follow-up.

CONCLUSION

Effective anesthesiologist–parent communication was associated with higher parental perioperative satisfaction. Better communication across domains such as clarity, empathy, and postoperative guidance contributed to improved satisfaction with anesthesia services. Strengthening communication practices may enhance family-centered perioperative care in pediatric surgery settings.

Acknowledgement: We sincerely acknowledge the support and guidance of our mentors, colleagues, and the staff of the participating hospital for their valuable assistance throughout this study.

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