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PREOPERATIVE SURVEY OF ELECTIVE SURGICAL PATIENTS' AWARENESS REGARDING ANAESTHESIA AND THE ROLE OF ANAESTHESIOLOGIST AT AN URBAN TERTIARY CARE HOSPITAL IN KARACHI

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Abstract: ***Background:*** The role of anesthesiologists and patient knowledge concerning anesthesia is essential for informed consent and perioperative care. Poor awareness has a potential impact on patient anxiety and compliance.***Objective*** To assess the knowledge and perception regarding anesthesia and the role of anesthesiologists among patients undergoing surgery at a tertiary care hospital.***Methods***: The study was a cross-sectional descriptive study conducted at the Department of Anesthesia, Critical Care and Pain Management, Liaquat National Hospital, Karachi between 5th August and 5th November 2025. Consecutive sampling was used to recruit 196 adult patients (18-65 years) scheduled to undergo elective surgery was included. A structured pre-coded questionnaire was used to gather data. Correct responses were scored 1, incorrect/don't know scored 0. Adequate knowledge was defined as ≥5/10. The data was processed in SPSS version 26 and analyzed. The Chi-square test was used to determine associations and $p<0.05$ was taken to be significant. ***Results:*** The mean age of participants was 39.8 ± 12.1 years, and 108 (55.1%) were male. Adequate knowledge regarding anesthesia and anesthesiologist roles was observed in 108 participants (55.1%). Younger patients (18–40 years) had significantly higher knowledge than older patients (61.8% vs 46.5%, $p = 0.031$), while no significant difference was observed between males and females (55.6% vs 54.5%, $p = 0.872$). Knowledge was highest for postoperative pain management (56.1%) and resuscitation duties (52.0%), but lower for intraoperative presence (38.8%) and airway management (37.2%).
Conclusion: Patient knowledge about anesthesia and the role of anesthesiologists is intermediate, and there is a lack of understanding of the role of intraoperative duties and regional/local anesthesia.

Keywords: Anesthesia, Anesthesiologist, Elective Surgery, Patient Knowledge, Perception

INTRODUCTION

The role of anesthesia is one of the most important aspects of contemporary surgical practice as it guarantees the safety, comfort, and the best outcomes of perioperative. Anesthesiologists in modern health care systems are instrumental in the provision of anesthesia, pre-operative evaluation, monitoring of operations, and treatment of pain after the operation as well as intensive care. The increased focus on value-based perioperative care has greatly increased their workload with the priorities on better patient outcome and effective use of the available healthcare resources [1].

Patient knowledge of anesthesia is defined as the actual knowledge of the anesthesia methods, risks, advantages and the professionalism of anesthesiologists. It has been also documented by various studies that most surgical patients have a poor understanding of anesthesiology and usually equate anesthesiologists with causing unconsciousness during surgery and their role as clinicians is largely unknown to patients [2,3]. The lack of knowledge can be a source of misunderstanding of the anesthesia processes and influence patient readiness to undergo surgery [4].

Patient perception of anesthesia conversely is associated with the beliefs, attitudes and general impressions that patients have about anesthesia and anesthesiologists. Such perceptions depend on many factors, such as education level, cultural background, past experience of surgical process, and information received in a healthcare provider or media. It is indicated that more educated patients or those who have undergone surgery procedures before are more likely to have better perceptions of the anesthetic care and the role of anesthesiologists [5]. Nonetheless, there is significant evidence in the literature of rural and urban healthcare facilities that demonstrates insufficient awareness and misunderstanding of patients who visit pre-anesthetic clinics [6].

Preoperative anxiety is a psychological outcome or reaction that is seen as fear, worry, or apprehension prior to surgery and anesthesia. It is regarded as a separate construct which can be affected by but not the same as knowledge and perception. Patients who have low knowledge on anesthesia or have a negative attitude towards the processes of anesthesia are the ones who develop greater anxiety before surgery [7]. It has been demonstrated that structured preoperative education and suitable communication between anesthesiologists and patients can lead to better patient knowledge and less anxiety thus better patient satisfaction and perioperative experience in general [8].

Although the value of patient education in anesthesiology is gaining increased importance, research studies in various countries have shown that patient education, perception and anxiety regarding anesthesia vary. These discrepancies demonstrate the necessity of context-related evaluations to spot the gaps in patient awareness and to create specific educational measures [9]. Nonetheless, there is little information on the level of knowledge, perception, and preoperative anxiety, which pertain to anesthesia among surgical patients in tertiary care units in Pakistan.

As such, the current research will determine the level of knowledge, perception, and preoperative anxiety about anesthesia in patients undergoing surgery in a tertiary care hospital aiming to outline gaps in their awareness and the need to inform measures on how to enhance preoperative patient education.

METHODS

The research was a descriptive cross-sectional study carried out in the Department of Anesthesia, Critical Care and Pain Management at Liaquat National Hospital in the period of Three months, 5th August and 5th November 2025. The study received ethical approval both at the Institutional Ethical Review Committee of the hospital (IRB Ref: App#1076-2024-LNH-ERC) and the College of Physicians and Surgeons Pakistan. All the participants were informed and given written informed consent before enrolling in the study and patient information remained confidential during the study.

The necessary sample size was determined with the help of the OpenEpi sample size calculator of

proportions under the conditions of a 95 percent confidence level, a 7 percent margin of error, and an estimated proportion of 50 percent of the patients possessing sufficient knowledge about anesthesia. A 50% estimate was used, which was informed by the recent cross-sectional studies that reported variable and moderate levels of patient awareness of anesthesia and the position of anesthesiologists, and was chosen as a conservative measure to guarantee the maximum sample size and sufficient statistical power [21]. This gave a minimum sample size of 196 participants required. The sampling used was consecutive sampling and all the eligible patients who visited the preoperative anesthesia clinic or were hospitalized to undergo elective surgery in the study period were approached till the target sample size was reached. The study included patients aged 18-65 years of both sex who had an elective surgery and could communicate in Urdu. Patients that underwent emergency surgery, had a history of psychiatric illness, severe hearing or speech impairment or were unable to understand Urdu were excluded to provide dependable understanding and reduce bias in responses.

A structured pre-coded questionnaire based on prior published and validated questionnaires, which measure patient knowledge and perceptions of anesthesia and anesthesiologists, was used to collect data [22]. These tools assess areas like sociodemographic factors, previous experience in exposure to anesthesia, awareness of the types of anesthesia, risks involved, and awareness of the roles and duties of anesthesiologists. Bilingual experts forward and backward translated the questionnaire into Urdu to facilitate verbal and conceptual equivalence.

The content and face validity were determined by checking with a panel of expert anesthesiologists and some changes were introduced to enhance the clarity and contextual relevance. A pilot study was carried out on 20 participants to measure the feasibility and understanding, and such participants were not included in the final analysis. Cronbach alpha was used to determine the internal consistency of the questionnaire with a value of 0.82 which is a good measure of reliability [23].

The questionnaire was divided into three parts; sociodemographic consideration (age, gender, educational status, previous exposure to anesthesia), knowledge of the roles and responsibilities of anesthesiologists (preoperative assessment, fasting instructions, monitoring intraoperative, postoperative care, and resuscitation), and knowledge about anesthesia (types of anesthesia, possible risks, and common questions that patients may have). Every right answer received a score of 1 and any wrong or don't know answer received a score of 0, which made the domain scores to be in the range of 0 to 10. A score of 5 and above was deemed as an indicator of a sufficient knowledge, as it is similar to the methods employed in other studies of the same nature [21].

All the data were put into a pre-designed proforma and analyzed by means of SPSS (version 22). The continuous variables were summarized with mean, and standard deviation or median and interquartile range based on the data distribution, and evaluated by Shapiro Wilk test. Frequencies and percentages were used to give categorical variables. Categorical variables were compared using Chi-square test with age and gender as the stratification factors to control possible confounders. The analysis was carried out with multivariate logistic regression to determine independent predictors of sufficient knowledge by holding constant such factors as educational level and prior exposure to anesthesia. The odds ratios were adjusted and provided with 95% confidence interval and p-value below 0.05 was taken as statistically significant

RESULTS

A total of 196 patients undergoing elective surgical procedures were included in the study. The study population consisted of adult patients across different age groups with a slight predominance of males. Most participants had at least secondary level education. The detailed sociodemographic characteristics of the participants are presented in Table 1.

Table 1: Sociodemographic Characteristics of Study Participants (n = 196)

Variable	N (%)
Age Group (years)	
18–30	58 (29.6)
31–40	52 (26.5)
41–50	46 (23.5)
51–65	40 (20.4)
Gender	
Male	108 (55.1)
Female	88 (44.9)
Educational Status	
No formal education	28 (14.3)
Primary education	42 (21.4)
Secondary education	76 (38.8)
Higher education	50 (25.5)
Previous Exposure to Anesthesia	
Yes	92 (46.9)
No	104 (53.1)

Participants demonstrated variable knowledge regarding the roles and responsibilities of anesthesiologists. Awareness was relatively higher regarding postoperative pain management and resuscitation, whereas knowledge regarding intraoperative monitoring, airway management, and intensive care involvement was comparatively lower. Detailed responses are presented in Table 2.

Table 2: Knowledge Regarding Role of Anesthesiologist (n = 196)

Variable	Correct n (%)	Incorrect/Don't Know n (%)
Assesses fitness before surgery	82 (41.8)	114 (58.2)
Gives fasting instructions	88 (44.9)	108 (55.1)
Remains present during surgery	76 (38.8)	120 (61.2)
Monitors vital signs during surgery	84 (42.9)	112 (57.1)
Manages complications during surgery	79 (40.3)	117 (59.7)
Performs resuscitation if required	102 (52.0)	94 (48.0)
Provides postoperative pain relief	110 (56.1)	86 (43.9)
Works in intensive care unit	69 (35.2)	127 (64.8)
Manages airway during surgery	73 (37.2)	123 (62.8)
Is a qualified medical doctor	91 (46.4)	105 (53.6)

Most participants had heard about anesthesia prior to surgery, and general anesthesia was the most recognized type. Knowledge regarding regional and local anesthesia was comparatively lower. Awareness regarding potential risks of anesthesia was limited, while several participants expressed fears related to anesthesia. These findings are summarized in Table 3.

Table 3: Knowledge Regarding Anesthesia (n = 196)

Variable	N (%)
Heard about anesthesia before	168 (85.7)
No prior knowledge of anesthesia	28 (14.3)
Knowledge of general anesthesia	140 (71.4)
Knowledge of regional anesthesia	78 (39.8)
Knowledge of local anesthesia	86 (43.9)
Awareness of anesthesia risks	74 (37.8)
Fear of not waking up	98 (50.0)
Fear of pain during surgery	82 (41.8)
Fear of needle insertion	64 (32.7)
Fear of paralysis	58 (29.6)

Participants were categorized into adequate and inadequate knowledge groups based on predefined scoring criteria.

Stratified analysis demonstrated a statistically significant association between age group and knowledge level, whereas gender was not significantly associated with knowledge status. The detailed stratification is shown in Table 4.

Table 4: Stratification of Adequate Knowledge by Age and Gender (n = 196)

Variable	Adequate Knowledge n (%)	Inadequate Knowledge n (%)	p-value
Age Group			
18–40 years	68 (61.8)	42 (38.2)	0.031
41–65 years	40 (46.5)	46 (53.5)	
Gender			
Male	60 (55.6)	48 (44.4)	0.872
Female	48 (54.5)	40 (45.5)	

Multivariable logistic regression analysis was further conducted to determine independent predictors of adequate knowledge. Educational level and previous exposure to anesthesia were identified as significant predictors after adjusting for potential confounders, whereas gender was not independently associated with knowledge level.

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DISCUSSION

The current research measured the level of knowledge and perception of the patients to anesthesia and the involvement of anesthesiologists in a tertiary care hospital. In general, the level of awareness was low, especially in relation to intraoperative duties and involvement in intensive care and the level of knowledge about postoperative pain treatment and general anesthesia was lower. This result is in line with other recent studies carried out in other areas.

Wang et al. [11] conducted a cross-sectional study, and they reported that most of the patients who had undergone surgery heard of anesthesia, although they had no idea of the role of anesthesiologists especially taking care of the airways and monitoring the operations. Equally, Zahran et al. [12] have discovered that patients usually undervalued the contribution of anesthesiologists because they mostly believed that their work in the operating room was based on offering sedation. Wu et al. [13] also found that there is a knowledge gap in patient knowledge about the type of anesthesia and the risk of perioperative, with the misconceptions about anesthesia prevalent and anxiety levels being high.

Such variations in regional awareness have been witnessed. According to Bazaid et al. [14] in Saudi Arabia knowledge regarding the role of anesthesiologists was very inconsistent and more knowledge was known about postoperative pain treatment than the preoperative evaluation or resuscitation. Jouybar et al. [15] also discovered that a significant number of patients despite their surgical experience did not correctly identify the responsibility of anesthesiologists and this showed the the role of systematic preoperative counseling.

The level of awareness in resource-constrained environments is lower. Hussein et al. [16] found that there was a great deficit of anesthesia-related knowledge among the patients in Somalia, which is indicative of educational and systemic constraints. On the contrary, Alrusan et al. [17] showed that specific educational interventions, including also pediatric pain management, might enhance patient and caregiver knowledge, and this method of education in a narrow, focused way is valuable.

The fear of anesthesia and its perception by patients is still a major problem in the world. According to Bacha et al. [18], the fear of postoperative complications or not to regain consciousness after anesthesia was a widespread phenomenon, which was consistent with our outcomes, where almost half of the respondents stated the same. Nabri et al. [19] have stressed that patient knowledge is closely associated with trust in anesthesiologists and the lack of information leads to preoperative anxiety and dissatisfaction. A review by Tylee et al. [20] concluded that the understanding of patients, fear reduction, and trust building during perioperative care largely relies on successful communication between the anesthesiologist and patients.

Taken together, these findings support the significance of patient education and communication in a structured way. Knowledge gaps, misconceptions, and perioperative anxieties can be filled using interventions like specific preoperative counseling. We also find that with the application of the tailored educational approach to patients; their awareness and confidence can be improved based on the demographic characteristics such as age and prior surgical experiences.

Study Limitations

There are a number of limitations with this study. To start with, it was carried out in only one urban, private tertiary-care hospital, and this could restrict the extent to which the results can be generalized to the rest of the public hospitals or the rural populations, as they

have different demographic and educational attributes. Second, the study used self-reported data regarding a structured questionnaire; this could cause bias in responses and could overestimate the knowledge of the patients. Third, the patients suffering from psychiatric disorders or hearing /speech impairments were not included limiting the study population heterogeneity. Fourth, despite the previous exposure to anesthesia being reported, the quality, frequency and recency of the previous anesthetic experiences was not considered in the study and may affect knowledge and perception. Fifth, the study assessed knowledge at one point in time, without evaluating the possibilities of preoperative education or structured counseling to enhance or decrease the level of awareness or anxiety. Lastly, although some of the predictors were undertaken using multivariable logistic regression, no other multivariate analyses on other predictors that influence knowledge and perception were carried out, which could restrict the interpretation of the independent associations.

CONCLUSION

The results reveal that the awareness and understanding of anesthesia and the functions of anesthesiologists among the surgical patients is still scarce, especially in matters concerning intraoperative monitoring, airway control and intensive care duties. General anesthesia and postoperative pain management were more well-known; the younger age and the previous contact with anesthesia were linked with a higher level of knowledge; gender had no significant differences.

These findings emphasize that preoperative education and patient-centered communication should have a structured approach in order to enhance perioperative knowledge and anxiety decrease. Interventions can be visual aids, informational brochures, preoperative workshops organized and individual counseling sessions with reference to patient demographic and previous surgical experiences. Such interventions may result in better patient education, a greater level of trust in anesthesiologists, and, eventually, better perioperative outcomes

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