Original Article

Assessment of Patients' Knowledge and Perceptions Regarding Pre-Anesthesia Check-Up in Adult Elective Surgical Patients at a Tertiary Care Hospital: A Descriptive Cross-Sectional Study

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Abstract

Background: Pre-anesthesia check-up (PAC) is essential to the safety of perioperative care, and patient awareness of its purpose is not optimal, especially in settings with limited resources. This knowledge gap can undermine patient involvement and the outcome of perioperative processes. **Material and Methods:** This is a prospective, descriptive, cross-sectional study conducted between January 2023 and June 2024 at one of the tertiary care hospitals in western India. A total of 341 adult patients (18–60 years of age) in the waiting pool who would undergo an elective surgery were recruited using the finite population correction formula. An 18-item preoperative questionnaire (validated modified version) was used in English or Marathi. The analysis was performed using SPSS version 26.0; the chi-square test and descriptive statistics were employed. **Results:** The average age of the sample was 37.62 (t=10.68), and 51.61% males. The most prevalent (37.83%) was secondary education. It was only 32.26% accurate in understanding that PAC was a complete pre-anesthesia evaluation, whereas only 38.71% thought the main goal of the process was securing a surgery date. 58% (50.44%) identified the person in charge of conducting PAC as the anesthesiologist. Regarding significance, 49.27 percent correctly identified the reduction of risk as the primary benefit. There were significant positive links with higher educational level between the correct purpose of PAC ($p<0.001$) and the role of the anesthesiologist ($p<0.001$). Although 65.40% insisted that the comorbidities be revealed, only 53.37% felt that things should be optimized before taking the knife. **Conclusion:** There are significant gaps in existing knowledge about the scope and significance of PAC, especially among less educated patients. Specific preoperative education interventions can increase patient engagement and improve perioperative outcomes.

Keywords: Pre-anesthesia check-up, patient awareness, perioperative optimization, anesthesiologist perception, patient education, elective surgery.

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Introduction

PAC is an essential element of perioperative care that is formal, evidence-based, identifies risk factors that can be mitigated, maximizes comorbid conditions, and leads to informed consent, thereby minimizing perioperative morbidity and mortality.[1,2] Although its clinical importance is not new, there has been a consistent gap in patients' knowledge regarding anesthesia and the role of an anesthesiologist in perioperative medicine, as revealed by numerous studies worldwide.[3,4]

Patients living in low- and middle-income countries often view PAC as red tape or an obligation to secure a date of surgery, rather than an individualized risk-reduction plan.[5,6] These kinds of misconceptions are also known to result in less than full disclosure of comorbidities, inadequate adherence to preoperative guidelines, and avoidable cancellation of surgery.[7] This lack of knowledge is especially evident in India, a country whose elective surgery volume is growing at an alarming rate; at the same time, the population lacks a clear understanding of perioperative medicine.[8,9]

The surveys conducted in recent years in various regions of India and other countries show quite frightening statistics: 40 to 60 percent of patients do not know about any role of an anesthesiologist other than taking care of them during the operation, many of them believe that a PAC is not necessary or only an administrative task.[10-12] A groundbreaking study by Singla and Mangla found that the purpose of PAC was misunderstood by a minority of patients in rural India, and that educational level was the strongest determinant of awareness.[5] The misconceptions have also been observed to cross geographical barriers within the Indian subcontinent, as reported

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in urban tertiary care centers.[13]

This trend is also supported by international evidence. Similar knowledge gaps have been reported among Libyan,[14] Ghanaian,[15] and Nepalese populations,[16] in which patients did not recognize the anesthesiologist as a separate medical professional and lacked awareness of the clinical importance of preoperative optimization. This is further worsened by communication barriers, a lack of patient education resources, and workflow designs that unintentionally perpetuate administrative views of PACs against clinical views and perceptions.[17]

Although this issue is receiving increased attention, the majority of the literature has serious methodological weaknesses, such as small sample sizes, single-centre, non-validated instruments, or a lack of stratification by education level. Moreover, few researchers have examined whether postoperative experience affects patients' perceptions of anesthesia services, which may be an interesting aspect to consider in the development of educational interventions.

Understanding the level of knowledge and misconceptions of patients regarding PAC is crucial for formulating educational approaches that are specific to patients and address their anxiety, compliance with preoperative instructions, and the overall outcome of the perioperative process. In addition, this information can be used to ensure that perioperative physicians are remembered by patients, which can inform the development of specialties and professional identity.

Therefore, the present study was conducted with the primary objective of comprehensively assessing the knowledge and perceptions of adult elective surgical patients regarding PAC at a tertiary care teaching hospital in western India. The secondary objective was to evaluate whether postoperative experience altered patients' perceptions of anesthesia and the anesthesiologist's role.

Materials and Methods

Study Design and Setting

This prospective descriptive cross-sectional study was conducted in the Pre-Anesthesia Clinic of a tertiary care teaching hospital in western India over 18 months from January 2023 to June 2024.

Sample Size Calculation: The sample size was calculated using the finite population correction formula:

$n = [z^2 \times p \times (1-p) / e^2] / [1 + (z^2 \times p \times (1-p) / (e^2 \times N))]$

Where: z = 1.96 (for 95% confidence level), p = 0.5 (expected proportion of awareness), N = 3000 (estimated annual elective surgical population), e = 0.05 (margin of error).

The calculated sample size was 341 patients.

Inclusion Criteria

Adult patients aged 18–60 years scheduled for elective surgery under general or regional anesthesia who were willing to provide written informed consent in English or Marathi were included.

Exclusion Criteria

Patients scheduled for emergency surgery, those with altered sensorium, hearing or speech impairment, pregnant women, and those refusing to participate were excluded from the study.

Data Collection Tool: The validated questionnaire (the modified version) was also used and consisted of 18 questions: 4 demographic and 14 knowledge/perception. The questionnaire was in English and Marathi. For illiterate patients, questions were asked verbally by a senior anesthesiologist to ensure patients understood. The questionnaire was designed with multiple-choice questions, and an I don't know option was included on most questions to reduce the tendency to guess. Two other questions, constructed by the investigator, were added to measure changes in postoperative perceptions of anesthesia and the anesthesiologist.

Procedure: Successive eligible patients at the PAC were registered upon providing written informed consent. The questionnaire was introduced preoperatively during the PAC visit. The postoperative questions were posed on postoperative days 1 or 2, when the patients were comfortable and alert. The answers were anonymous to ensure confidentiality.

Statistical Analysis: Information was captured in Microsoft Excel and was analyzed with SPSS 26.0 (IBM Corp., Armonk, NY, USA). Frequencies and percentages were used to present categorical variables, whereas the mean and standard deviation (SD) were used to show continuous variables. The chi-square test was used to assess relationships between categorical variables. All analyses were considered statistically significant at p=0.05.

Results

The study had 341 respondents who completed the research, yielding a response rate of 98.8%. Below are the demographic factors and a significant discovery.

Demographic Characteristics: The average age of the participants was 37.62 ± 10.68 years (18-60 years). The overall average age was 32.26 with a standard deviation of 8.09, with the highest population of 31-40 years (32.26 percent), then 21-30 years (24.34 percent), 41-50 years (23.75 percent), 51-60 (14.96 percent), and less than 20 years (4.69 percent). Males occupied 51.61(n=176) and the females took 48.39(n=165).

Regarding educational status, secondary school education was most common (37.83%, n=129), followed by graduate level (28.74%, n=98), primary school (16.72%, n=57), illiterate (9.97%, n=34), and postgraduate (6.74%, n=23). Prior PAC attendance was reported by 73.61% (n=251) of participants, while 26.39% (n=90) were first-time attendees.

Knowledge and Perceptions Regarding PAC

[Table 1] presents the distribution of responses to key knowledge and perception questions. When asked about the necessity of PAC, 60.70% (n=207) believed it was necessary, 10.85% (n=37) thought it was unnecessary, and 28.45% (n=97) were unsure.

Regarding the reason for PAC, only 32.26% (n=110) correctly identified it as pre-anesthesia assessment. In comparison, 38.71% (n=132) believed the primary purpose was to obtain a surgery date, 18.18% (n=62) stated it was to comply with the surgeon's instructions, and 10.85% (n=37) did not know.

Table 1: Distribution of Patient Responses to Key Knowledge Questions (n=341)

Question	Response Options	n (%)
Is PAC necessary?	Yes	207 (60.70)
	No	37 (10.85)
	I don't know	97 (28.45)
Reason for PAC	Pre-anesthesia assessment	110 (32.26)
	To get surgery date	132 (38.71)
	Surgeon's instructions	62 (18.18)
	I don't know	37 (10.85)
Who performs PAC?	Anesthesiologist	172 (50.44)
	Doctor in clinic	107 (31.38)
	Nurse/technician	39 (11.44)
	I don't know	23 (6.74)
Importance of PAC	Reduce anesthesia/surgery risk	168 (49.27)
	Get surgery date	104 (30.50)
	Legal documentation	36 (10.56)
	I don't know	33 (9.68)

Concerning what is done during PAC, 39.88% (n=136) mentioned general patient assessment, 25.81% (n=88) correctly identified assessment, optimization, and risk stratification, 22.29% (n=76) stated tests for anesthesia assessment, and 12.02% (n=41) did not know.

Identification of the professional conducting PAC showed that 50.44% (n=172) correctly recognized the anesthesiologist, 31.38% (n=107) believed it was any doctor in the clinic, 11.44% (n=39) thought it could be a nurse or technician, and 6.74% (n=23) were unsure.

Understanding of Clinical Relevance

[Table 2] summarizes responses regarding the clinical significance of PAC and disclosure of medical conditions. Regarding the importance of PAC, 49.27% (n=168) correctly identified risk reduction, 30.50% (n=104) associated it with obtaining surgery dates, 10.56% (n=36) considered it for legal documentation, and 9.68% (n=33) were unsure.

Table 2: Patient Responses Regarding Clinical Significance and Disclosure (n=341)

Question	Response	n (%)
Must disclose heart/renal disease?	Yes	223 (65.40)
	No	13 (3.81)
	Not if well controlled	69 (20.23)
	I don't know	36 (10.56)
Preexisting conditions need optimization?	Yes	182 (53.37)
	No	15 (4.40)
	Not if unrelated to surgery	108 (31.67)
	I don't know	36 (10.56)
Do conditions affect outcome?	Yes	191 (56.01)
	No	39 (11.44)
	I don't know	111 (32.55)
Do smoking/drinking affect outcome?	Yes	207 (60.70)
	No	32 (9.38)
	I don't know	102 (29.91)
PAC only for anesthesia cases?	Yes	192 (56.30)
	No	86 (25.22)
	I don't know	63 (18.48)

When asked whether conditions like heart disease, breathing difficulties, and renal problems must be disclosed before surgery, 65.40% (n=223) answered affirmatively, 20.23% (n=69) stated "not if well controlled," 3.81% (n=13) said no, and 10.56% (n=36) were unsure.

Regarding optimization of preexisting conditions, 53.37% (n=182) agreed it was necessary, 31.67% (n=108) believed it was required only if related to a surgical condition, 4.40% (n=15) said no, and 10.56% (n=36) did not know. Concerning whether preexisting conditions affect anesthesia and surgery outcomes, 56.01% (n=191) responded yes, 32.55% (n=111) were unsure, and 11.44% (n=39) said no.

Influence of Education and Compliance Behavior

[Table 3] demonstrates the association between educational level and correct understanding of PAC concepts. Higher education showed a significant association with proper identification of PAC purpose (illiterate 11.76% vs. graduate/postgraduate 56.20%, $p<0.001$), recognition of an anesthesiologist's role (illiterate 26.47% vs. graduate/postgraduate 73.55%, $p<0.001$), and understanding that PAC reduces risk (illiterate 35.29% vs. graduate/postgraduate 62.81%, $p=0.002$).

Table 3: Association Between Educational Level and Correct Knowledge (n=341)

Knowledge Item	Illiterate (n=34)	Secondary (n=129)	Graduate/PG (n=121)	p-value
Correct PAC purpose	4 (11.76%)	38 (29.46%)	68 (56.20%)	<0.001
Recognizes anesthesiologist	9 (26.47%)	58 (44.96%)	89 (73.55%)	<0.001

PAC reduces risk	12 (35.29%)	62 (48.06%)	76 (62.81%)	0.002
Must disclose comorbidities	16 (47.06%)	85 (65.89%)	97 (80.17%)	0.001
Conditions need optimization	12 (35.29%)	66 (51.16%)	82 (67.77%)	<0.001

When asked about following PAC advice, 53.96% (n=184) stated they would follow it for their own good, 22.29% (n=76) said they would follow it only until surgery, 17.30% (n=59) said they would follow it only if the surgeon endorsed it, and 6.45% (n=22) were unsure. Regarding expected benefit, 68.04% (n=232) believed PAC would reduce postoperative pain and discomfort, 11.44% (n=39) disagreed, and 20.53% (n=70) were unsure.

Discussion

The present study reveals substantial knowledge gaps regarding the purpose, scope, and clinical significance of pre-anesthesia check-up among adult elective surgical patients at a tertiary care teaching hospital in India. The most amazing discovery was that only a third (32.26) of the patients recognized PAC as a thorough pre-anesthesia exam, and most thought it was an administrative obligation to secure a surgery date. This is a major misunderstanding that has serious consequences for patient adherence, preoperative education, and, consequently, patient safety during perioperative experiences.

The results we obtained are similar to those reported by Singla and Mangla,[5] who observed the same trends in rural India. Patients had low knowledge of PAC, despite a very high attendance rate. These findings appear uniform across urban and rural tertiary care settings, suggesting that the lack of knowledge is not just a product of healthcare access but also of underlying systemic problems in patient education and communication. Likewise, Bhardwaj et al,[10] found that 59.7% of patients attended PAC due to its recommendation, mainly at the suggestion of surgeons rather than its clinical value, a finding also reflected in our study, where 18.18% of participating patients reported attending PAC at the suggestion of surgeons.

Only 50.44% of respondents in our study identified the anesthesiologist as the professional in charge of PAC. This value is lower than the 74.2 percent reported by Taneja et al,[13] in another Indian teaching hospital, but much higher than the 38.2 percent reported by Neupane et al,[16] in Nepal. This difference may indicate that institutional culture, patient demographics, and anesthesiologists' exposure across various health care settings differ. The low visibility across all these studies highlights a longstanding problem in defining professional identity. It underscores the importance of encouraging anesthesiologists to be more patient-facing during the perioperative stage.

The educational level was the strongest predictor of awareness in our study, and graduate and postgraduate patients showed much better awareness across all areas compared to illiterate patients ($p<0.001$). Such an educational gap has been repeatedly established in the prior literature.[5,10,14] It indicates that any intervention applied should be patient-specific, with reference to their literacy status. The illiteracy rate in our sample is 9.97%, and only 16.72% have primary education, which means that almost a quarter of patients will need special educational techniques, such as the use of visual tools, content written in their native language, and even video presentations.

Positively, 65.40 percent of patients understood the importance of reporting comorbidities before surgery, including heart disease and kidney issues, which is comparable to 71.9 percent (Taneja et al.).[13] Nevertheless, only 53.37% believed that preexisting conditions should be optimized before an operation, with a significant 31.67% thinking that this should be done only when the condition was linked to the issue being operated on. This false assumption may lead to insufficient preoperative preparation and a heightened risk during the preoperative period. The lack of links between the need to disclose and the value of optimization makes it clear that the process of patient education should not focus solely on mere awareness but also include the description of the mechanistic links among medical states, anesthesia, and postsurgery outcomes.

The results that 60.70% of the patients felt that smoking and drinking could influence the outcomes of anesthesia are similar to the results of the Abofila et al,[14] (77.5%) and Neupane et al,[16] (62%) studies. This comparative awareness of the issue of lifestyle relative to other concepts of PAC might be an indicator of more pervasive health promotion on the issue of smoking and alcohol, where similar wholesome campaigns that promote perioperative optimization might work.

An interesting conclusion was that 56.30 percent of patients felt that PAC was needed only when anesthesia was administered. This misunderstanding has also been mentioned by other witnesses,[10,13] and it may simply be due to the terminology used, namely, pre-anesthesia check-up, which implies an exclusivity to anesthesia. Restructuring this as a preoperative assessment or perioperative optimization clinic may aid in expanding patients' awareness of its universal applicability.

The fact that, according to the study, 47.21% of patients would discuss their fears related to anesthesia during the PAC visit, rather than in the operating room or preanesthesia room, is a strong indicator of proper patient expectations. This is unlike the 58.6% preference reported by Singla and Mangla,[5] who found that they were more comfortable discussing issues with surgeons during an inpatient stay, which may be due to either better institutional practices or greater anesthesiologist accessibility in our environment.

The fact that we have a relatively large sample size and are using a validated, culturally adapted questionnaire is an important strength of our study. The extensive coverage of literacy levels through interviewer-administered administration allowed the representation of the full spectrum of literacy, thereby increasing generalizability. Nevertheless, there are several limitations worth considering. The single-center design limits external validity, whereas its cross-sectional design precludes causal inference. Also, there might have been social desirability bias, leading to over-reporting of positive attitudes. Prospective longitudinal follow-up of the educational interventions on ultimate patient behavior and outcomes is desirable in future multicenter longitudinal research.

These findings are practical in nature with some implied action steps. To start with, educational resources of different languages and formats (written, visual, video) need standardization and be handed over to the audience at the time of surgical scheduling. Secondly, short-term structured patient education sessions might be added to the PAC workflow.[17] Third, the institutional work processes shall be reorganized to reflect the clinical, but not the administrative, character of PAC. Lastly, anesthesiologists need to see themselves as perioperative physicians and should be involved in patient education, and not just documentation.[18]

Conclusion

This paper shows that, despite high attendance rates, there remain considerable knowledge gaps and misconceptions about what a pre-anesthesia check-up is and its extent and clinical significance in adult elective surgical patients. Patients had a clear understanding of PAC as a holistic approach to assessment, with only one-third viewing it as an administrative necessity. There was educational attainment, which has been identified as the best predictor of awareness, indicating a dire need for literacy-appropriate educational interventions.

These results emphasize the importance of multilingual patient education programs that should be incorporated into PAC routine processes. The interventions of this type should focus on the use of PAC in risk assessment, medical condition optimization, and the enhancement of perioperative outcomes, rather than serving the administration's needs. Increased compliance with preoperative directions, reduced anxiety, and fewer perioperative cancellations could be achieved, with patient safety and satisfaction as the outcomes. Future studies in this field should aim to develop and test specific educational interventions and determine their effectiveness in changing patient behaviour and perioperative outcomes.

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Conflicts of interest

There are no conflicts of interest.

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