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Research Article

Patients' Perception of Anaesthesia and Participation in Their own Perioperative Safety- An Observational Study

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Abstract

Patients for Patient Safety (PFPS) is a World Health Organization (WHO) program that advocates meaningful engagement of patients and families to improve patient safety. Perioperative patient safety encompasses surgical risks, as well as risks due to anesthesia. This study was conceptualized to assess patient's perception of their involvement in enhancing their perioperative safety and the current state of patient knowledge regarding anesthesia. This observational cross-sectional study was conducted at a tertiary care teaching hospital in India. One hundred sixty-three consenting adults aged 19 years to 75 years who were scheduled for elective surgery between May and July 2022 and had American Society of Anesthesiologists grades 1 to 3 participated in the study. Patients with psychiatric disorders, cognitive impairment, and speech and hearing problems were excluded. A prevalidated questionnaire of 21 questions was administered in the preoperative area. Data collection was performed in an online MS Excel spreadsheet.

In our study, it was encouraging to note that the general awareness of the requirement of anesthesia for surgery was widely acknowledged. Nonetheless, information about anesthesia as a separate specialty and anesthesiologists as specialized doctors was lacking (43/163, 28.8%). The inadequate awareness of anesthesia, as found in our study, might not be a true reflection of a wider population, which calls attention to investing in 'anesthesia awareness programs'. Our study revealed a very promising initial step in patient empowerment, as the majority of patients (100/163; 61.3%) were amenable to participate in their own perioperative safety. Regardless of education status, the population in general needs to be familiarized with the shared patient responsibility in enhancing patient safety, similar to other public health programs. Our study aligns with the recently proposed concrete interventions for improving the quality of perioperative care at a global stage, which contributes to sustainable development goals aimed at achieving universal health coverage.

Keywords: Anesthesia awareness; Patients for patient safety (PFPS); Perioperative care

Introduction

Patients for Patient Safety (PFPS) is a World Health Organization (WHO) program that advocates meaningful engagement of patients and families to improve patient safety. Patient engagement is described as "What can patients do to prevent medical mistakes?" This prominent initiative was developed as a part of the patient safety movement. [1] Patient engagement is a vital component of achieving integrated and people-centered health systems and services [2,3]. The PFPS concept was first introduced in 2005. [2] Even after two decades, patients' awareness of the implications of PFPS for perioperative safety has remained unexplored. It would be pragmatic to explore the patient's perception of perioperative safety. Additionally, their comprehension of shared responsibility enhances safety. This knowledge can further assist in the design of awareness programs for the community. Patients' comprehension of their role in improving perioperative safety would eventually translate into patient cooperation and mutual collaboration among patients and medical staff, furthermore, reduce the incidence of violence against healthcare delivery systems.

Perioperative patient safety encompasses patient safety from surgical risks, as well as from risks due to anesthesia. A recent study revealed that postoperative deaths account for 7·7% of all deaths globally, making it the third greatest contributor to deaths after ischaemic heart disease and stroke. [4] A landmark systematic review and meta-analysis of 21.4 million patients receiving general anesthesia for surgery revealed that mortality solely attributable to anesthesia has significantly declined over time, from 357 per million before the 1970s to 34 per million from the 1990s--2000s. Total perioperative mortality has also decreased, with the greatest decline observed in developed countries; however, perioperative mortality rates are higher in developing countries than in developed countries, indicating a disparity in healthcare quality and access. [5] Studies over the years have revealed a variable degree of awareness of anaesthesia among patients, families, and the community. [6-8] Since the COVID-19 epidemic, awareness of anesthesia specialties and the role of anesthesiologists in intensive care units has improved. However, there is still a wide gap in the knowledge about anesthesia and perioperative safety in low- and middle-income countries [9].

To address this information and maintain the vision of PFPS, this study was conceptualized to assess patients' perceptions of their involvement in enhancing their own perioperative safety. Additionally, the current state of patient knowledge and apprehensions regarding anesthesia was assessed.

Methodology

Ethics approval was given by the Jamia Hamdard Institutional Ethics Committee (JHIEC 01/20), and the study was prospectively registered with the Clinical Trials Registry-India (CTRI) under the registration number CTRI202010028318 on 09 October 2020. The registration details can be accessed at [http://ctri.nic.in]. This observational, cross-sectional study was conducted over a period of three months at a tertiary care teaching hospital in North India. All the participants provided written informed consent before taking part in the study. Pilot testing of the questionnaire was performed in October 2020. However, because the study was temporarily discontinued during the COVID-19 pandemic, the study resumed on 2nd May 2022 and was completed on 30th July 2022. One hundred sixty-three consenting consecutive adults aged 19 years to 75 years who were scheduled for elective surgery and had American Society of Anesthesiologists grades 1 to 3 participated in the study. Patients with psychiatric disorders, cognitive impairment, and speech and hearing problems were excluded. The questionnaire was prepared by all the study investigators. The questionnaire was validated by various specialists, including anesthesiologists, surgeons and psychiatrists. These specialists were not a part of the study. Each study question was assessed under the following headers: relevance, clarity, simplicity and nonambiguity.

The questionnaire was in English (available as supplementary material) and was administered to the patients by a dedicated interviewer in the preoperative area. The interviewer was an anesthesiologist. The questions were asked in English or in the local language Hindi, as per patients' understanding. The interviewer was not involved in any subsequent steps of the study. The questionnaire also contained some open-ended questions to allow flexibility for the participants to add their own insights. After completing the questionnaire, the interviewer addressed patients' doubts and educated the patients on their shared responsibility for their own perioperative safety.

The questionnaire consisted of 21 questions divided into 4 sections and took ten minutes to complete. Section 1 contained questions related to patient demography, education status and prior exposure to anesthesia and surgery. Section 2 explored patients' awareness of anesthesia, anesthesiologists, preanesthesia examinations, patients' understanding of their relevant health conditions and the relevance of 'nil per oral' status before surgery. Section 3 assessed patients' concerns, such as fear of unconsciousness during surgery, pain during the perioperative period and any other concerns, such as anxiousness and confidence regarding the surgery. Section 4 focused on patients' perception of their participation in enhancing their own perioperative safety (PFPS) [1].

The collected data were pooled and coded via the MS Excel spreadsheet program. SPSS v23 (IBM Corp.) was used for data analysis. Descriptive statistics are presented as the means ± standard deviations, medians ± IQRs and in a graphical manner via histograms/box-and-whisker plots/column charts for continuous variables. Data are presented as frequencies and percentages and graphically as bar charts/pie charts for categorical variables. Group comparisons for continuously distributed data were made via an independent sample 't' test when two groups were compared. Appropriate nonparametric tests in the form of Wilcoxon tests were used for nonnormally distributed data. The chi-square test was used for group comparisons of categorical data. If the expected frequency in the contingency tables was found to be <5 for >25% of the cells, Fisher's exact test was used instead. The linear correlation between two continuous variables was explored via Pearson's correlation (if the data were normally distributed) and Spearman's correlation (for nonnormally distributed data). Statistical significance was set at $p < 0.05$. The AUROC was compared via DeLong's method.

Results

A total of 163 patients participated. The mean age of the patients was 36.61 ± 13.11 years; 61 (37.4%) patients were males, and the remaining patients were females. Almost half of the patients attended school below upper secondary (78/163;47.9%), one fourth did not attend school (42/163; 25.8%), whereas the remaining one fourth received education in upper secondary and above (43/163;26.4%) (Table 1). The education levels are taken in accordance with the world population review [10].

Basic Details	**Mean ± SD || Median (IQR) || Min-Max || Frequency (%)**
Age (Years)	36.61 ± 13.11 || 35.00 (27.00-46.00) || 19.00 - 75.00
Age	
19-30 Years	71 (43.6%)
31-40 Years	36 (22.1%)
41-50 Years	28 (17.2%)
51-60 Years	18 (11.0%)
61-70 Years	9 (5.5%)
71-80 Years	1 (0.6%)
Gender	
Male	61 (37.4%)
Female	102 (62.6%)
Educational Level	
No schooling	42 (25.8%)
Below Upper Secondary	78 (47.9%)
Upper Secondary and above	43 (26.4%)
Had experience of Previous Surgery	59 (36.2%)
Had experience of Previous Anaesthesia	
Needle in Back	30 (50.8%)
Full Unconciousness	25 (42.4%)
Local Anaesthesia	2 (3.4%)
Full Unconciousness, Needle in back	1 (1.7%)
Don't know	1 (1.7%)

Basic Details	**Mean ± SD || Median (IQR) || Min-Max || Frequency (%)**
Who Gives Anesthesia	
Don't know	86 (52.8%)
Specialist Doctor	47 (28.8%)
Surgeon	20 (12.3%)
Nurse	7 (4.3%)
Technician	3 (1.8%)
Confidence Regarding Perioperative Safety	
Fully Confident	70 (42.9%)
Not Confident	93 (57.1%)
Reason for 'Nil per Oral'	
Don't know	115 (70.6%)
Helps in surgery	42 (25.8%)
Helps in safe Anesthesia and prevent airway complications	6 (3.6%)
Know If Anaesthesia Is Required for the Planned Surgery	
Yes	132 (81.0%)
Don't Know	31 (19.0%)
Knows the Word Anaesthesia	
Yes	39 (23.9%)
No	124(76.1%)
Can Help Improving Own Perioperative Safety	
Yes	100 (61.3%)
No	40 (24.5%)
Don't Know	23 (14.1%)
Know About Things to Inform Before Surgery	
Yes	104 (63.8%)
Don't Know	59 (36.2%)
Know Whether PAE was done	
Yes	114 (69.9%)

Basic Details	**Mean ± SD || Median (IQR) || Min-Max || Frequency (%)**
Don't Know	49 (30.1%)
Wanted to Know About After-Care	
Yes	85 (52.1%)
No	78 (47.8%)

Table 1: Summary of all parameters.

Awareness Regarding Anesthesia

The majority of patients (132/163; 80.9%) knew that some method of 'unconsciousness' or 'numbness' would be provided to them during surgery. Only approximately one-third of the patients (43/163, 28.8%) were aware that anesthesia is administered by a 'specialist doctor'. Over half (86/163, 52.8%) of the patients did not know how to administer anesthesia; others thought that it could be administered by the 'surgeon', 'nurse', or 'technician'. All patients were aware of the term 'surgery', and only 24.0% of patients were aware of the term 'anesthesia' (Table 1). Preanesthesia evaluation (PAE), also known as preanesthesia checkup (PAC), was performed for all patients in the preoperative area. However, only 70% (114/163) of patients were aware that their PAE was performed (Table 1). One-fourth (42/163) of patients thought that 'nil per oral' (NPO) is a requirement for surgery, and fewer than 4% of patients were aware that NPO status is also a requirement for safe anesthesia (Table 1). A lack of awareness of NPO status was not found to be associated with education level, previous surgery, or prior PAE evaluation. Sixty-four percent (104/163) of patients agreed that they should provide their medical history to the doctor before surgery. Among these 104 patients, the majority said that informing the doctor of their current health conditions (83.6%; 87/104, $p<0.001$) and previous surgeries (43.26%; 45/104, $p<0.001$) was relevant for their perioperative safety. Patients also thought that informing them about their current medications and allergies, including drug allergies, was relevant (Tables 2,3).

Comorbidities present	**Yes**	**No**
Health Condition	44 (27.0%)	119 (73.0%)
Medication	23 (14.1%)	140 (85.9%)
Allergy	10 (6.1%)	153 (93.9%)
Pregnancy	1 (0.6%)	162 (99.4%)
Smoking	11 (6.7%)	152 (93.3%)
None	104 (63.8%)	59 (36.2%)
Others	0 (0.0%)	163 (100.0%)
Concerns in perioperative period	**Yes**	**No**
No concerns / Fully confident	70 (42.9%)	93 (57.1%)
Unconsciousness during surgery	24 (14.7%)	139 (85.3%)
Wake up Time after surgery	27 (16.6%)	136 (83.4%)
Pain	29 (17.8%)	134 (82.2%)
Anxiety, unknown fear	23 (14.1%)	140 (85.9%)
Successful outcome of surgery	40 (24.5%)	123 (75.5%)
Can Help Improving Own Safety	**Yes**	**No**

Comorbidities present	**Yes**	**No**
Yes, By not Being Anxious	48 (29.4%)	115 (70.6%)
Yes, By taking Care of Health	5 (3.1%)	158 (96.9%)
Yes, By co-operating with doctor	52 (31.9%)	111 (68.1%)
Yes, by telling relevant Things	7 (4.3%)	156 (95.7%)
Yes, but Don't Know How	7 (4.3%)	156 (95.7%)
No, because God Is Everything	8 (5.0%)	155 (95.0%)
No, because Doctor Is responsible	32 (19.6%)	131 (80.4%)
Things to Inform to the doctor before surgery	**Yes**	**No**
Correct Site	1 (0.6%)	162 (99.4%)
Health Condition (co-morbidities)	87 (53.4%)	76 (46.6%)
Medications	30 (18.4%)	133 (81.6%)
Allergy	30 (18.4%)	133 (81.6%)
Pregnancy	3 (1.8%)	160 (98.2%)
Smoking	7 (4.3%)	156 (95.7%)
Previous Surgery	45 (27.6%)	118 (72.4%)
Concerns regarding care post-surgery (after care)	**Yes**	**No**
Diet	24 (14.7%)	139 (85.3%)
Stitches	11 (6.7%)	152 (93.3%)
Other Precautions	13 (8.0%)	150 (92.0%)
Medications	8 (4.9%)	155 (95.1%)
Normal Activities	39 (23.9%)	124 (76.1%)
Child Care	5 (3.1%)	158 (96.9%)
Discharge	15 (9.2%)	148 (90.8%)
Complications	16 (9.8%)	147 (90.2%)

Table 2: Distribution of all parameters.

Parameters	**Know About Things to Inform Before Surgery**		**p value**
	Yes (n = 104)	**Don't Know (n = 59)**	
Things to Inform: Correct Site (Yes)	1 (1.0%)	0 (0.0%)	1.000[2]
Things to Inform: Health Condition (Yes)* **	87 (83.7%)	0 (0.0%)	<0.001[1]
Things to Inform: Medications (Yes)* **	30 (28.8%)	0 (0.0%)	<0.001[1]
Things to Inform: Allergy (Yes)* **	30 (28.8%)	0 (0.0%)	<0.001[1]
Things to Inform: Pregnancy (Yes)	3 (2.9%)	0 (0.0%)	0.554[2]

Parameters	Know About Things to Inform Before Surgery		p value
	Yes (n = 104)	Don't Know (n = 59)	
Things to Inform: Smoking (Yes)* **	7 (6.7%)	0 (0.0%)	0.049[2]
Things to Inform: Previous Surgery (Yes)* **	45 (43.3%)	0 (0.0%)	<0.001[1]

***Significant at p<0.05, 1: Chi-Squared Test, 2: Fisher's Exact Test

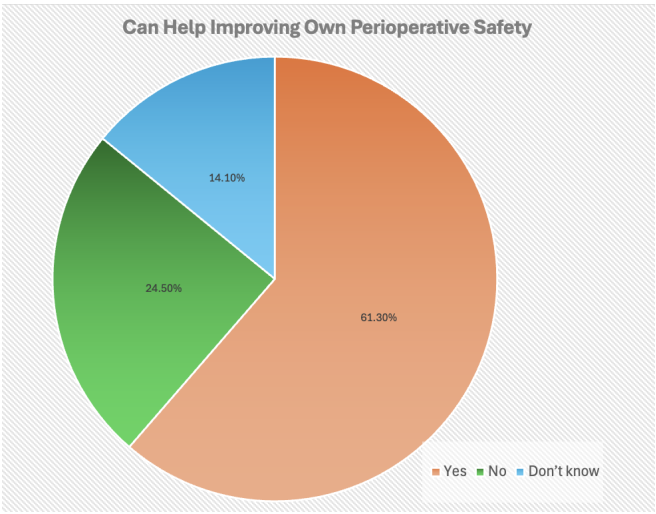
Table 3: Association between 'Things to Inform Before Surgery and Parameters'.

Concerns Regarding the Perioperative Period

One-third of patients (51/163; 31.2%) were concerned with unconsciousness during surgery and waking up after surgery. Pain after surgery was worrisome for 18% of the patients (Table 2). After surgery, most patients wanted to know about their diet (14.7%) and resume normal activities (23.9%) (Table 2). Almost half of the patients (70/163; 42.9%) were confident regarding their surgery and had no perioperative concerns (Table 1).

Patient Participation in their safety (Patients for Patient Safety, PFPS)

A positive finding of the study was that more than half (100/163; 61.3%) of the patients surveyed agreed that they can help improve their own perioperative safety (Table 1,Figure 1).



Discussion

A total of 163 patients were surveyed on their perceptions of their own perioperative safety. Additionally, awareness of the anesthesia specialty and their apprehensions regarding anesthesia were also revealed. For patients' engagement in their own perioperative safety, information regarding anesthesia is as important as information regarding surgery.

Patient Participation in Their Perioperative Safety

More than half of the patients surveyed were cognizant of their participation in improving their own perioperative safety (Table 1). This is in line with the 'Patients for Patient Safety' (PFPS) concept of the perioperative period. The open-ended responses to this question gave insights into patient thought process and beliefs. They were as follows. Patients believed that PFPS can be obtained by cooperating with their doctors, such as following their instructions, taking prescribed medications and staying calm (Table 2). In addition, these patients were significantly more aware of anesthesia and the importance of informing their doctors about health conditions such as allergies, comorbidities and previous surgical exposure (Table 4). However, this PFPS perception did not correlate with educational status or prior exposure to surgery and anesthesia.

Parameters	Can Help Improving Own Safety			p value
	Yes (n = 100)	No (n = 40)	Don't Know (n = 23)	
Know If Anaesthesia Is Required*				<0.001[1]
Yes	90 (90.0%)	26 (65.0%)	16 (69.6%)	
Don't Know	10 (10.0%)	14 (35.0%)	7 (30.4%)	
Knows the Word Anaesthesia / Anaesthetist (Yes) *	36 (36.0%)	2 (5.0%)	1 (4.3%)	<0.001[1]
Know About Things to Inform Before Surgery*				<0.001[1]
Yes	77 (77.0%)	14 (35.0%)	13 (56.5%)	
Don't Know	23 (23.0%)	26 (65.0%)	10 (43.5%)	
Things to Inform: Health Condition (Yes) *	66 (66.0%)	10 (25.0%)	11 (47.8%)	<0.001[1]
Things to Inform: Allergy (Yes) *	25 (25.0%)	2 (5.0%)	3 (13.0%)	0.017[1]
Things to Inform: Previous Surgery (Yes) *	36 (36.0%)	3 (7.5%)	6 (26.1%)	0.003[1]

***Significant at p<0.05, 1: Chi-Squared Test*

Table 4: Association between 'Participation in Own Safety and Parameters.

Notably, one-fourth (40/163, 24.5%) of the surveyed patients said that they had no role in their own perioperative safety (Table 1). Among these 40 patients, eight patients believed that the perioperative outcomes were entirely the 'hands of God', whereas 32 patients (32/163, 19.6%) felt that the perioperative outcomes were the 'hands of the doctors' (Table 2). Notably, 20%, which is one-fifth of the patients surveyed, believed that their safety lies entirely in the 'hands of doctors'. This cohort can potentially turn hostile to the medical team in the event of unfavourable perioperative outcomes, which could be misrepresented through social media. Therefore, it is important to talk with the patients' community and on social media platforms about PFPS awareness. The preoperative period does offer a 'teachable' moment when these patients and their families can be identified and educated on shared patient responsibility for perioperative safety.

In our study, we found that despite having had prior exposure to anesthesia and surgery, patients were not aware of the concept of participation in their own perioperative safety. This may reflect the lack of effective communication by the perioperative team. Therefore, effective communication by the perioperative team can have a significant impact, as revealed by a study by Wolter CB et al [11] on patients' perspectives on patient engagement in safety. They reported that during communication regarding patient safety, patients related more to terms such as 'your safety' instead of 'patient safety' and thought that engagement in healthcare decisions was their 'right'. However, they believed that the ultimate responsibility of their safety should still lie in the hands of healthcare professionals. [12] This finding resonates with our study population, who thought/believed that patient safety lies entirely in the 'hands of doctors'.

Our study aligns with the findings of Gobbo et al [12], who noted that patients value preadmission contact, specific education, effective communication, continuity of care, and privacy during the perioperative period. Our study revealed that these are crucial factors for enhancing patient satisfaction and safety [12].

Like our study, Dixon and Tillman [13] did not find a correlation between education level and patients' perceptions of their safety.

Neither did modern patient safety initiatives directly influence patients' perceptions. Before surgery, physician trust and patient communication were found to have the greatest impact on patients' feelings of safety. Patients who had more trust in their doctor and had better communication with health care workers were 30% less likely to complain against the doctor [13,14].

Awareness About Anesthesia

We found that more than 80% of the surveyed patients were aware that they would experience some kind of numbness or unconsciousness before their surgery; however, the majority were oblivious about anesthesia being administered by specialized doctors (Table 1). Similar findings have been reported in previous studies. Despite a high level of awareness (82-92%) regarding the need for some type of anesthesia for surgery, [8,15,16] the knowledge of anesthesia being a separate specialty and anesthesiologists being specialized doctors was found to be limited (30-50%) [6,8,15].

In contrast, some studies have reported high levels of awareness among anesthesiologists. A survey conducted with visitors to a health fair in Bangalore, India, in [14,16-20] revealed very high awareness (75% of participants) that anesthesiologists are doctors. This could be because the survey was conducted in a specific cohort of educated industry workers, and the questionnaire design had leading questions with a binary response format. Similarly, a high level of awareness among patients about anesthesiologists as 'specialized doctors' was reported in a study from Ghana.[17] This was attributed to the fact that 88% of the surveyed patients were educated and were referred to a 'special doctor' (anesthetist) by the surgeon. This highlights the role of team communication, including that of surgical colleagues, in creating anesthesia awareness.

In our study, only 24% of patients knew the word 'anaesthesia' (Table 1); however, most of the patients related to the more commonly used term 'behoshi', which in the local language means 'unconsciousness'. Similarly, unawareness of the term 'anesthesiologist' was observed compared with 'physicians' and 'surgeons' by Prasad et al.[16] We believe that this lack of awareness of specific terminology for unconsciousness might have impacted awareness of anesthesia as an independent specialty and that anesthesiologists, as independent doctors, are at par with surgery and surgeons. Surprisingly, in a study conducted in 2009, awareness about the spectrum of anesthesia procedures available to patients was found to be lacking not only in the general population but also among educated people, including medical undergraduate students [18]. Additionally, in our study, educated patients were significantly more aware of term anesthesia and the need for anesthesia for surgery and were more engaged in their after-care requirements than uneducated patients were (Table 5). A positive correlation between education and anesthesia awareness is well known [6,8,15,19,20].

Parameters	Educational Level			p value
	No schooling (n = 42)	Below Upper Secondary (n = 78)	Upper Secondary and above (n = 43)	
Know If Anaesthesia Is Required*				0.003[1]
Yes	28 (66.7%)	63 (80.8%)	41 (95.3%)	
Don't Know	14 (33.3%)	15 (19.2%)	2 (4.7%)	
Knows the Word Anaesthesia / Anaesthetist (Yes) *	0 (0.0%)	14 (17.9%)	25 (58.1%)	<0.001[1]
Yes	24 (57.1%)	47 (60.3%)	33 (76.7%)	
Don't Know	18 (42.9%)	31 (39.7%)	10 (23.3%)	
Know Reason for Fasting (Yes) *	6 (14.3%)	27 (34.6%)	15 (34.9%)	0.044[1]
Wanted to Know About After-Care (Yes) *	12 (28.6%)	46 (59.0%)	27 (62.8%)	0.002[1]

*Significant at $p<0.05$, 1: Chi-Squared Test

Table 5: Association between 'Educational Level' and Parameters.

The lack of effective communication by the anesthesia team is reflected in the findings of our study. Previous experience with surgery did not result in increased awareness of anesthesia. Although all patients had undergone Preanaesthesia Evaluation (PAE), one-third of them were not aware that they had completed PAE. Fewer than 4% of patients knew that the recommended Nil Per Oral (NPO) status is vital for safe anesthesia delivery (Table 1). Many patients believe that preoperative fasting is a requirement for abdominal surgeries only. This lack of awareness could lead to noncompliance with preoperative NPO instructions in patients postabdominal surgeries, leading to adverse anesthesia outcomes. A lack of correlation between anesthesia awareness and a history of previous surgery has also been reported in earlier studies. [6,15] The need to improve patient communication by the anesthesia team, particularly during preoperative visits, can be an effective measure [6,8,19,20].

The Indian Society of Anaesthesiologists designed an 'ISA Public Awareness Flier' (Supplementary file). It has two sections, 'Know your Anaesthesia' and 'Know your Anaesthesiologist', and is a very useful tool for spreading anesthesia awareness among patients and their families. This can be made available in PAE clinics, surgical outpatient clinics, and wards.

Things to be Informed About Before Surgery

Sixty-four percent of patients were aware of the importance of informing the doctor's medical history preoperatively, particularly their current comorbidities and previous surgeries (Table 1, Table 2). Notably, only one patient in our study (1 out of 163; 0.6%) (Table 2) said that the correct site of surgery must be emphasized. Although patients are aware that wrong-site surgeries can occur, they also need to be educated about the role of patient participation in reducing such errors.

Concerns regarding the Perioperative Period

The main concerns of patients during the perioperative period included successful surgery outcomes, unconsciousness during surgery, waking up after surgery, pain management after surgery, resumption of diet, and normal activities after surgery. A substantial proportion of the patient population that comes to our hospital are daily wage workers; therefore, the resumption of a normal diet and activities also reflects returning to work early and earning. Notably, half of the patients (80/163; 49%) were mainly concerned about unconsciousness during surgery (24/163), waking up after surgery (27/163) and pain management after surgery (29/163) (Table 2), all of which are 'anesthesia related' outcomes.

In our study, almost half (42.9%) of the patients were confident regarding their surgery and did not have any perioperative concerns or fears. An important factor for patients' confidence is their faith in the surgeon. As noted by Dixon and Tillman, [13] physicians' trust and patient communication strongly affect patients' ability to feel safe before surgery.

Previous studies have reported similar findings of fear of unconsciousness during surgery, not waking from anaesthesia after surgery, pain during and after surgery, and fear of death. [6,19] The role of public health education programs and the use of media for education has been suggested. [6,18,19] Our study highlights the importance of integrated programs for improved communication in PAEs, which can alleviate such patient fears and encourage patient empowerment.

In our study, educated patients were found to be generally more aware of anesthesia; they were more concerned about the perioperative period and knew that they needed to tell their relevant medical history to the doctor before surgery (Table 5). Despite this increased awareness of anesthesia and perioperative care, educated patients were unaware of patient participation in enhancing perioperative safety. As noted by Wolter CB et al., [11] although patients demand engagement in healthcare decisions, the ultimate responsibility for their safety still lies in the hands of healthcare professionals only, which is also reflected in our study. One limitation of our study is the small sample size; therefore, the outcome represents the perception of a small cohort of patients. This study serves as a pilot study for larger studies on patient engagement in perioperative safety.

In conclusion, it was encouraging to note in our study that the general awareness of the requirement of anesthesia for surgery was widely acknowledged. Nonetheless, perceptions of anesthesia as a separate specialty and anesthesiologists as specialized doctors are lacking. The inadequate awareness of anesthesia, as found in our study, might not be a true reflection of a wider population, which calls attention to investing in 'anesthesia awareness programs'. This should be addressed globally through academia, professional societies, public health, and social platforms. To the best of our knowledge, no previous studies have explored patients' perceptions of 'Patients for Patient Safety' in the perioperative period. Our study revealed a very promising initial step in patient empowerment in that the majority of patients were amenable to participation in their own perioperative safety. Regardless of education status, the population in general needs to be familiarized with the shared patient responsibility in enhancing patient safety, similar to other public health programs. High-quality surgical services that ensure patient safety are essential to achieve the health-related targets of the United Nations Sustainable Development Goals.[21] Our study also aligns with the proposed concrete interventions for improving the quality of perioperative care at a global stage towards achieving universal health coverage [22].

Declarations

Ethics approval and consent to participate: Ethics approval was given by the Jamia Hamdard Institutional Ethics Committee (JHIEC 01/20), and the study was registered prospectively with the Clinical Trials Registry- India. All the participants provided written informed consent before taking part in the study. This cross-sectional observational study was conducted in accordance with the principles outlined in the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist.

Consent for publication: This was a questionnaire-based observational study with no experiments conducted on human participants. Ethical approval and informed consent were obtained from all participants, and no identifiable personal data was collected or published.

Availability of data and materials: All data generated or analyzed during this study are included in this published article and are publicly available for unrestricted use.

Competing interests & Funding: The authors declare that there are no conflicts of interest and no external funding was received for the study.

Authors' contributions

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
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