Journal of Pioneering Medical Sciences
Received: August 03, 2025 | Accepted: December 03, 2025 | Published: December 05, 2025
Volume 14, Issue 11, Pages 92-106

DOI https://doi.org/10.47310/jpms2025141115

Community Understanding and Perception of Anesthesia and the Expertise and Role of Anesthesiologists Among the General Population in Makkah

Khalid Abdulrahman Basamih[1], Hamza Abdullah Turkistani[2], Abdullah Ahmed Mohammed[3], Yazan Abdullah Baqadir[4], Feras Baderaldeen Kofiah[5], Mousa Mohammad Alshumrani[6], Omar Abdullah Baqadir[7], Fahad Ali Alshumrani[8], Abdullah Khalid Aldawsari[9], Asmaa Fayez Ekram[10] and Mokhtar Mahfouz Shatla[11*]

[1-9]Department of Medicine and Surgery, Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia
[10]Ibn Sina National College for Medical Studies, Jeddah, Saudi Arabia
[11]Department of Community Medicine and Pilgrims Health Care, College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia

*Corresponding author: Mokhtar Mahfouz Shatla (e-mail: mmshatla@uqu.edu.sa).

Abstract **Background:** Public perception and awareness of anesthesia and anesthesiologists are often limited, despite the critical role anesthesiologists play in patient safety and perioperative care. Misconceptions and insufficient knowledge may affect trust and communication between patients and healthcare providers. **Objectives:** This study aimed to assess the level of public awareness and understanding of anesthesiology, including perceptions of anesthesiologists' roles, qualifications and responsibilities and to identify factors influencing this awareness among residents in Makkah, Saudi Arabia. **Methods:** A cross-sectional study was conducted using a structured self-administered questionnaire distributed to residents of Makkah. The survey collected sociodemographic data and assessed participants' knowledge and perception of anesthesia and anesthesiologists. Data were analyzed using SPSS version 26 to identify trends and associations between variables. **Results:** Preliminary findings indicate varying levels of awareness, with many participants demonstrating limited knowledge of anesthesiologists' roles and training. Factors such as age, gender and previous surgical experience were associated with differences in perception and trust. **Conclusion:** There is a significant gap in public understanding of anesthesiology in Makkah. Increasing public education and engagement-particularly through preoperative discussions and awareness campaigns-may improve trust and promote more informed patient decision-making.

Key Words Anesthesia, Anesthesiologist, Public Awareness, Perception, Makkah

INTRODUCTION

Despite the fact that anesthesia is essential to modern medicine, it is commonly misinterpreted and many people are ignorant of the skills and efforts that anesthesiologists undertake to save lives [1]. William T.G. Morton was the first person to provide anesthesia in public, having done it in 1846. Since that momentous occasion, anesthesia and anesthesiology have undergone tremendous changes, evolving into a well-established and rapidly developing subspecialty of medicine [2]. The role of the anesthesiologist within the operating room is crucial and its scope has expanded in recent years. In general, the medical specialty of anesthesiology focuses on providing reversible states of unconsciousness, amnesia, muscular relaxation and analgesia. Anesthesiologists work in a wide variety of settings, including pain clinics, operating rooms and Intensive Care Units (ICUs) and remain critical providers of patient care and outcomes [3]. There are several types of anesthesia, including local anesthesia, monitored anesthesia care, general anesthesia and regional anesthesia [4]. The most frequently reported adverse events were serious: death was experienced in 26% of cases, nerve injury in 22% and permanent brain damage in 9%. Clearly, risks are high. When examining the damaging occurrences that were the focus of claims, the frequency of regional blocks was highest (20%), followed by respiratory complications (17%), cardiovascular complications (13%) and equipment-related incidents (10%). Together, these harmful events reflect the delicate challenges that anesthesiologists face in assuming their pivotal role in the healthcare system [5]. In Saudi

Arabia, there was one study in 2023 that assessed public knowledge and perception of anesthesia, anesthesiologists' expertise and their role among Saudi citizens residing, which showed that while most participants acknowledged anesthesiologists as specialized physicians, some misconceptions and gaps in understanding regarding their duties were evident. The research emphasizes the need to enhance public knowledge about anesthesia, addressing prevalent worries such as the fear of mortality linked to undergoing anesthesia [6]. This study aimed to assess Awareness About Anesthesia Among the General Population in Makkah.

METHODS

Study Design and Setting

This cross-sectional study was carried out to assess the general population's awareness of anesthesia in Makkah, Saudi Arabia. It used a structured questionnaire based on a prior study to gather detailed insights.

Study Population and Sampling

The study population comprised adults aged 18 years and older residing in Saudi Arabia. Participants were recruited using convenience sampling to achieve a diverse demographic representation, covering age, gender, socioeconomic status and geographic location regions. Adults of any gender who are current citizens of Makkah were included. Exclusion criteria involved visitors to the city, those who declined informed consent and participants who did not complete the study questionnaire. The minimum sample size was calculated using Raosoft, considering Saudi Arabia's population of approximately 33 million inhabitants, with a 95% confidence interval and an assumed 50% prevalence rate. The calculated sample size was 385 participants but to ensure higher reliability, we expanded the number to exceed 500 participants [7].

Data Collection Instrument

An online questionnaire was created with Google Forms and distributed electronically via social media channels. It was adapted from an earlier Saudi study that evaluated knowledge and perceptions of anesthesia, anesthesiologists' expertise and their role among Saudi residents [6].

The questionnaire included five main sections: (1) Consent form, (2) Sociodemographic data, (3) Assessment of knowledge about anesthesia, (4) Assessment of attitudes toward anesthesia and (5) Specific questions for patients with anesthesia.

Data Management and Quality Control

Data were gathered electronically using Google Forms and exported to Microsoft Excel for initial analysis. Quality control involved checking the completeness of responses, removing duplicates and verifying logical consistency among related questions. Responses lacking demographic information or with incomplete sections of the questionnaire were omitted from the final dataset.

Statistical Analysis

Statistical analyses were conducted using R software (version 4.3.0). Categorical variables are reported as frequencies and percentages, while continuous variables are summarized with means, standard deviations, medians and interquartile ranges as appropriate. Heatmaps created with the Likert package visualized Likert-type responses to display response patterns across related questions. Questions with similar response scales were grouped into themes: knowledge questions (Yes/No/Not sure), trust and attitude questions (Yes/Sometimes/No).

Ethical Considerations

This study complied with the Declaration of Helsinki and received approval from the Umm Al-Qura University Institutional Review Board (IRB). All participants electronically gave informed consent before filling out the questionnaire. Anonymity was maintained during data collection and analysis, with no personally identifiable information gathered or stored. All data remained confidential and were used solely for research, consistent with the study's objectives.

RESULTS

The Table 1 shows the distribution of the research sample participants according to their social and economic characteristics 596 individuals). Examining the Gender distribution reveals that females constituting a larger portion of the sample (60.1% or 358 individuals) compared to males (39.9% or 238 individuals). Regarding Age, the largest group of participants falls within the 20-29 year range (64.1% or 382 participants), followed by smaller representations in the older age 40-49 years (12.9% or 77 participants), 50-59 years (10.7% or 64 participants), 30-39 years (9.2% or 55 participants) and the smallest numbers of 60 years and over (3.0% or 18 participants). In terms of educational level, the majority of the sample holds a post-graduate degree (66.1% or 394 participants), with High school graduates is the next largest group (21.8% or 130 participants). Smaller proportions are consisting for Collegiate (7.7% or 46 individuals), Middle school (2.9% or 17 participants), Primary school (0.8% or 5 participants) and those who did not attend school (0.7% or 4 participants). Based on Monthly income, the largest segment of the participants earns less than 5000 Saudi Riyals (61.1% or 364 individuals). This is followed by those earning 5000-10000 Saudi Riyals (16.9% or 101 individuals), more than 15,000 Saudi Riyals (11.9% or 71 participants) and 10,000-15,000 Saudi Riyals (10.1% or 60 participants). Related to Chronic medical conditions, a significant majority of the sample reported not having any (86.6% or 516 participants), while a smaller portion indicated having a chronic condition (13.4% or 80 participants). Finally, regarding Previous surgeries, over half of the participants reported having no prior surgeries (58.9% or 351 participants). The remaining participants reported having one surgery (22.0% or 131 participants), two surgeries (9.9% or 59 participants) or three or more surgeries (9.2% or 55 participants).

Table 1: The Distribution of the Research Sample Participants According to their Social and Economic Characteristics, (596) Individuals

Variables	Frequency	Percent
Gender		
Male	238	39.9
Female	358	60.1
Age		
20-29	382	64.1
30-39	55	9.2
40-49	77	12.9
50-59	64	10.7
60 and over	18	3.0
Educational level		
Did not attend school	4	0.7
Primary school	5	0.8
Middle school	17	2.9
High school	130	21.8
Collegiate	46	7.7
Post-Graduate	394	66.1
Monthly income		
Less than 5000 Saudi Riyals	364	61.1
5000 - 10000 Saudi Riyals	101	16.9
10,000 - 15,000 Saudi Riyals	60	10.1
More than 15,000 Saudi riyals	71	11.9
Chronic medical condition (eg, diabetes, high blood pressure)		
Yes	80	13.4
No	516	86.6
Previous surgeries		
None	351	58.9
One surgery	131	22.0
Two surgeries	59	9.9
Three or more surgeries	55	9.2

Table 2: Perceptions about Anesthesiologist Role and Responsibilities

Statements	Frequency	Percentage	Mean	Std. Deviation
Who puts the patient to sleep before surgery?				
Surgeon	34	5.7	2.06	0.502
Anesthesiologist	519	87.1		
Nurse	18	3.0		
I don't Know	25	4.2		
Who is responsible for waking up the patient after surgery?				
Surgeon	33	5.5	2.51	0.794
Anesthesiologist	308	51.7		
Nurse	175	29.4		
I don't Know	80	13.4		
Who is responsible for monitoring the patient's vital signs throughout the surgical procedure?				
Surgeon	60	10.1	2.51	0.790
Anesthesiologist	224	37.6		
Nurse	261	43.8		
I don't Know	51	8.6		

Table 2 shows the Perceptions about Anesthesiologist role and responsibilities. It presents the frequency, percentage, average responses (Mean) and the variability of responses (Std. Deviation) regarding who is perceived to be responsible for specific actions during the surgical process. The statement with the highest average score, indicating the strongest consensus among participants, is "Who is responsible for waking up the patient after surgery?" with a mean of 2.51. The other statement with the same average score of 2.51 is "Who is responsible for monitoring the patient's vital signs throughout the surgical procedure?", also pointing towards the Anesthesiologist or Nurse as the perceived responsible party. The statement "Who puts the patient to sleep before surgery?" received a slightly lower average score of 2.06. The standard deviations for all three statements are relatively small (ranging from 0.502 to 0.794), suggesting a moderate level of agreement among the participants regarding these responsibilities as per Figure 1.

Table 3 shows the Perceptions about Anesthesiologists' education and training. It presents the frequency, percentage, average responses (Mean) and the variability of responses (Std. Deviation) of the perceived duration of education and training required for Anesthesiologists and surgeons. Regarding the question "How many years of education are required for an Anesthesiologist to become a medical student?", the average response is 2.00. A slightly higher average of 2.10 was observed for the statement "How many years of education are required for surgeons in medical school?". Concerning the duration of training, the statement "How many years of training are required for

Table 3: Perceptions about Anesthesiologists' Education and Training

Statements	Frequency	Percentage	Mean	Std. Deviation
How many years of education are required for an Anesthesiologist to become a medical student?				
4 or less	123	20.6	2.00	0.642
5 or more	351	58.9		
I don't know	122	20.5		
How many years of education are required for surgeons in medical school?				
4 or less	31	5.2	2.10	0.438
5 or more	476	79.9		
I don't know	89	14.9		
How many years of training are required for Anesthesiologists?				
4 or less	205	34.4	2.01	0.834
5 or more	182	30.5		
I don't know	209	35.1		
How many years of training are required for surgeons?				
4 or less	136	22.8	2.06	0.715
5 or more	290	48.7		
I don't know	170	28.5		

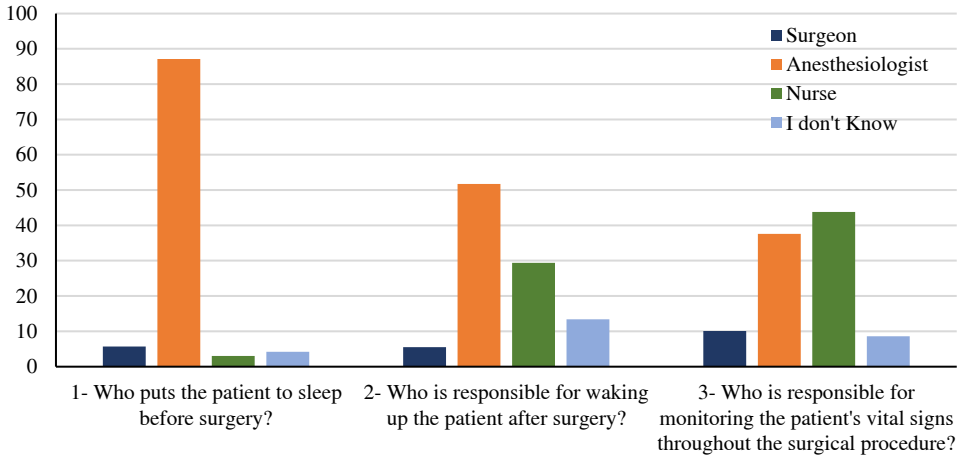

Figure 1: Perception about Anesthesiologist's Role and Responsibilities

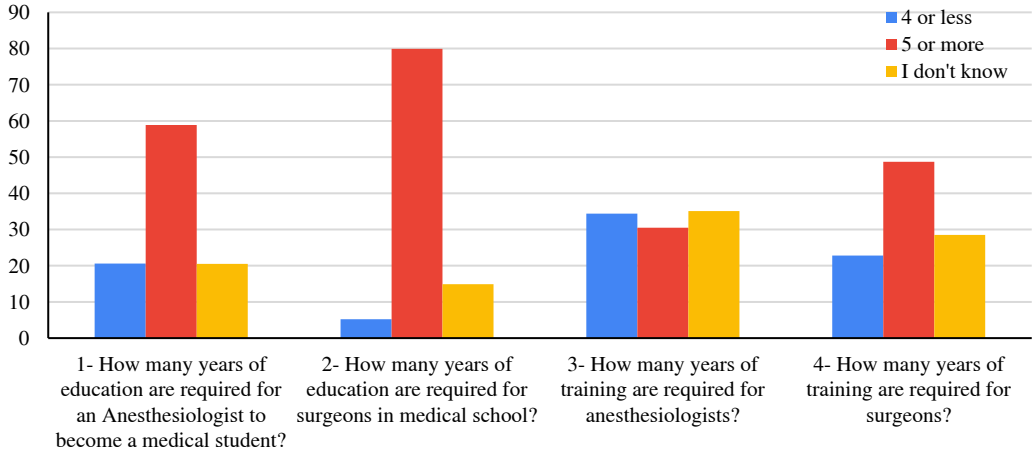

Figure 2: Perceptions about Anesthesiologist's Education and Training

Anesthesiologists?" yielded a mean of 2.01. A slightly higher average of 2.06 was reported for "How many years of training are required for surgeons?". The standard deviations for all four statements range from 0.438 to 0.834, indicating a moderate level of agreement among the respondents regarding the perceived duration of education and training for both professions. The data of Figure 2 indicated that a general perception among the participants that both Anesthesiologists and surgeons require 5 or more years of education to become medical students and a subsequent 5 or more years of training.

Table 4 shows the trust in physicians and Anesthesiologists. It presents the frequency, percentage, average responses (Mean) and the variability of responses

Table 4: Trust in Physicians and Anesthesiologists

Statements	Frequency	Percentage	Mean	Std. Deviation
1- Do you trust that your doctor will make your health care his first concern before any other factors?				
Yes	397	66.6	1.66	0.985
No	33	5.5		
Not sure	138	23.2		
Prefer not to answer	28	4.7		
2- Have you ever refused medical care because you didn't trust your doctor?				
Yes	148	24.8	1.91	0.691
No	379	63.6		
Not sure	45	7.6		
Prefer not to answer	24	4.0		
3- Do you think that Anesthesiologists are influenced by medical insurance regulations during your care?				
Yes	131	22.0	2.33	0.899
No	184	30.9		
Not sure	237	39.8		
Prefer not to answer	44	7.4		
4- Do you believe that your Anesthesiologists will put all other things aside and make your health care a priority?				
Yes	406	68.1	1.61	0.947
No	42	7.0		
Not sure	124	20.8		
Prefer not to answer	24	4.0		

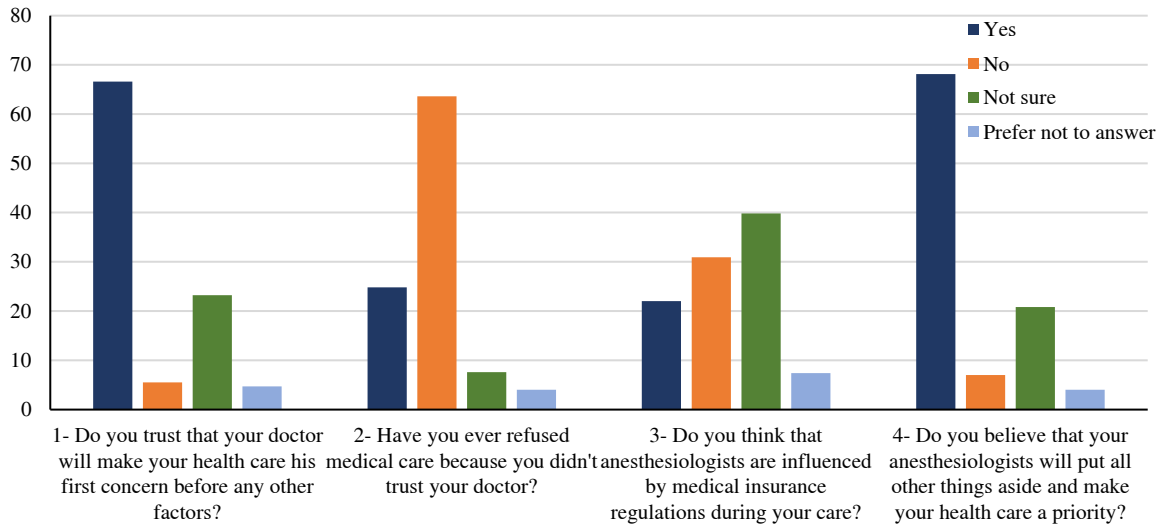

Figure 3: Trust in Physicians and Anesthesiologist

(Std. Deviation) regarding participants' trust in physicians and Anesthesiologists across several statements. For the statement "Do you trust that your doctor will make your health care his first concern before any other factors?", the average response is 1.66. this mean value indicates a general tendency towards "Yes," suggesting that participants mostly trust their doctors to prioritize their health. The statement "Have you ever refused medical care because you didn't trust your doctor?" received a mean of 1.91. This average leans slightly towards "No," implying that the majority of participants have not refused medical care due to a lack of trust in their doctor. Regarding the statement "Do you think that Anesthesiologists are influenced by medical insurance regulations during your care?" shows a mean of 2.33. This average falls between "No" and "Not sure," suggesting that participants are somewhat uncertain towards believing that Anesthesiologists might be influenced by these regulations. The statement "Do you believe that your Anesthesiologists will put all other things aside and make your health care a priority?" has a mean of 1.61. This average strongly indicates a tendency towards "Yes," suggesting that participants generally believe their Anesthesiologists will prioritize their health care. The standard deviations for all four statements are relatively high, ranging from 0.691 to 0.985. This indicates a a less uniform level of agreement or certainty regarding these aspects of trust in physicians and Anesthesiologists. The data suggests a general trust in doctors and Anesthesiologists to prioritize patient health, with most participants not having refused care due to a lack of trust as shown in Figure 3.

Table 5 show the Concerns or fears about anesthesia. It presents the frequency, percentage, average responses (Mean) and the variability of responses (Std. Deviation) regarding various concerns or fears associated with anesthesia. The statement with the highest average score Mean = 2.41 is "Fear of needles". This indicates that participants are leaning towards being "Somewhat concerned" about needles.

Table 5: Concerns or Fears about Anesthesia

Statements	Frequency	Percentage	Mean	Std. Deviation
Fear of pain				
Very concerned	154	25.8	2.15	0.850
Somewhat concerned	218	36.6		
Not concerned	202	33.9		
Don't know	22	3.7		
Fear of death during anesthesia				
Very concerned	189	31.7	2.10	0.940
Somewhat concerned	205	34.4		
Not concerned	155	26.0		
Don't know	47	7.9		
Fear of brain damage				
Very concerned	190	31.9	2.14	0.983
Somewhat concerned	192	32.2		
Not concerned	153	25.7		
Don't know	61	10.2		
Fear of waking up in the middle of surgery				
Very concerned	218	36.6	2.02	0.937
Somewhat concerned	184	30.9		
Not concerned	157	26.3		
Don't know	37	6.2		
Fear of memory loss				
Very concerned	142	23.8	2.37	0.947
Somewhat concerned	146	24.5		
Not concerned	253	42.4		
Don't know	55	9.2		
Fear of postoperative headache				
Very concerned	113	19.0	2.39	0.892
Somewhat concerned	191	32.0		
Not concerned	239	40.1		
Don't know	53	8.9		
Fear of nausea and vomiting				
Very concerned	129	21.6	2.32	0.906
Somewhat concerned	195	32.7		
Not concerned	222	37.2		
Don't know	50	8.4		
Fear of needles				
Very concerned	113	19.0	2.41	0.868
Somewhat concerned	164	27.5		
Not concerned	280	47.0		
Don't know	39	6.5		
Anxiety about undressing for surgery				
Very concerned	168	28.2	2.20	0.911
Somewhat concerned	171	28.7		
Not concerned	226	37.9		
Don't know	31	5.2		
Fear of speaking during anesthesia				
Very concerned	198	33.2	2.19	0.993
Somewhat concerned	138	23.2		
Not concerned	210	35.2		
Don't know	50	8.4		

Fear of postoperative headache Mean = 2.39 and Fear of memory loss Mean = 2.37 also show average responses in the "Somewhat concerned" range. The statement "Fear of waking up in the middle of surgery" has a mean of 2.02. This suggests that participants are slightly more than "Somewhat concerned" about this particular fear. The remaining statements, Fear of pain Mean = 2.15, Fear of death during anesthesia" Mean = 2.10, Fear of brain damage Mean = 2.14, "Anxiety about undressing for surgery Mean = 2.20, Fear of speaking during anesthesia Mean = 2.19 and Fear of nausea and vomiting Mean = 2.32 also shows within the "Somewhat concerned" range.

The standard deviations for all the statements are relatively close, ranging from 0.850 to 0.993.

The data suggests that participants generally express some level of concern about the various aspects of anesthesia, with fears of needles, postoperative headache and memory loss being the most prominent as per Figure 4.

Table 6 shows the Knowledge related to anesthesia. It presents the frequency, percentage, average responses (Mean) and the variability of responses (Std. Deviation) regarding the truthfulness of several statements about anesthesia. The statement with the lowest average score, indicating the strongest agreement with being "True," is "Some surgical procedures can be performed under local anesthesia without the need for general anesthesia" with a mean of 1.37. This suggests that participants generally believe this statement to be true. It is essential for the

Table 6: Knowledge Related to Anesthesia

Statements	Frequency	Percentage	Mean	Std. Deviation
A healthcare practitioner who holds a Bachelor's degree in Medicine and General Surgery and has then completed his medical training in the field of anesthesia				
True	345	57.9	1.68	0.861
False	95	15.9		
Don't know	156	26.2		
After passing a special training program, the nurse can anesthetize patients under the supervision of an Anesthesiologist				
True	200	33.6	2.06	0.853
False	161	27.0		
Don't know	235	39.4		
The Anesthesiologist has extensive experience in pain management and dealing with pain resulting from surgical procedures				
True	250	41.9	1.95	0.889
False	124	20.8		
Don't know	222	37.2		
An Anesthesiologist can give a woman an epidural during labor				
True	328	55.0	1.79	0.921
False	65	10.9		
Don't know	203	34.1		
All surgical procedures require the patient to undergo general anesthesia				
True	77	12.9	2.04	0.545
False	418	70.1		
Don't know	101	16.9		
Some surgical procedures can be performed under local anesthesia without the need for general anesthesia				
True	458	76.8	1.37	0.719
False	54	9.1		
Don't know	84	14.1		
It is essential for the Anesthesiologist to be familiar with the patient's medical history, including all medications the patient is taking before undergoing surgery				
True	455	76.3	1.41	0.767
False	38	6.4		
Don't know	103	17.3		
Pre-operative fasting means not taking anything by mouth				
True	337	56.5	1.64	0.806
False	134	22.5		
Don't know	125	21.0		
Pre-operative fasting means not taking anything by mouth except water				
True	259	43.5	1.82	0.813
False	184	30.9		
Don't know	153	25.7		
In general, anesthesia is a largely safe medical procedure				
True	360	60.4	1.66	0.864
False	81	13.6		
Don't know	155	26.0		
General anesthesia often causes brain damage to the patient				
True	120	20.1	2.21	0.753
False	233	39.1		
Don't know	243	40.8		
There is a direct relationship between the possibility of anesthesia complications and the patient's poor health condition				
True	234	39.3	2.06	0.917
False	94	15.8		
Don't know	268	45.0		
Vomiting and nausea are common side effects of general anesthesia				
True	353	59.2	1.73	0.919
False	50	8.4		
Don't know	193	32.4		
The patient may be aware of what is happening around him while under general anesthesia				
True	179	30.0	1.99	0.769
False	244	40.9		
Don't know	173	29.0		

Anesthesiologist to be familiar with the patient's medical history, including all medications the patient is taking before undergoing surgery" with a mean of 1.41, also indicating a strong agreement with its truthfulness.

These statements have means between "True" and "False," indicating a less certain opinion among the respondents. These include: "A healthcare practitioner who holds a Bachelor's degree in Medicine and General Surgery

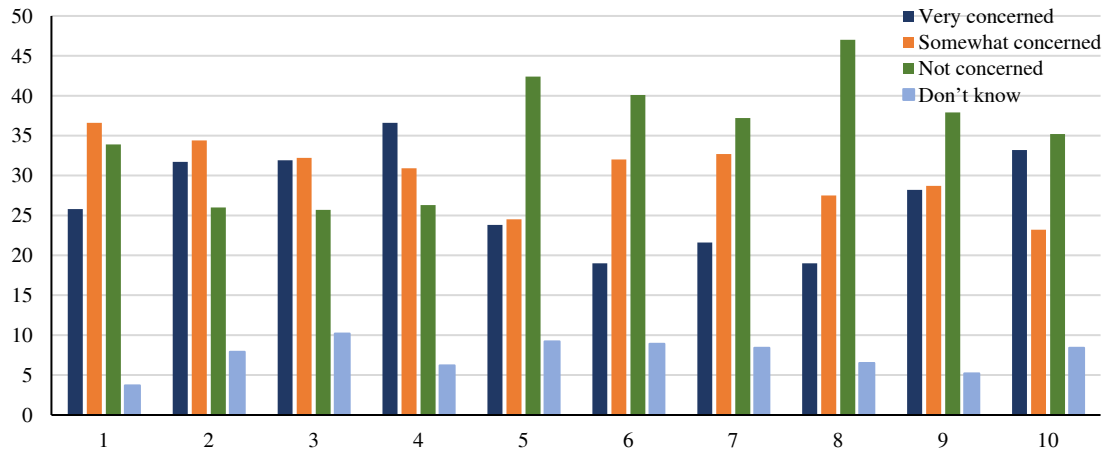

Figure 4: Concerns of fear about anesthesia

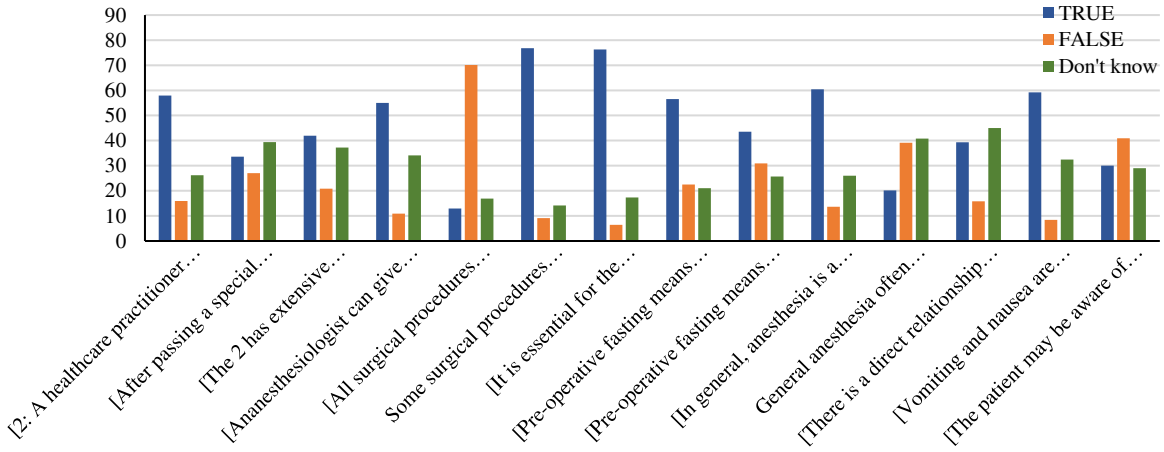

Figure 5: Knowledge related to anesthesia

and has then completed his medical training in the field of anesthesia" (mean = 1.68), "In general, anesthesia is a largely safe medical procedure" (mean = 1.66) and "Vomiting and nausea are common side effects of general anesthesia" (mean = 1.73). The statement "An Anesthesiologist can give a woman an epidural during labor" has a mean of 1.79, also suggesting a tendency towards "True". "Pre-operative fasting means not taking anything by mouth" has a mean of 1.64, shows towards "True.", "Pre-operative fasting means not taking anything by mouth except water" has a slightly higher mean of 1.82, indicating more participants might perceive this as false or are unsure. "The patient may be aware of what is happening around him while under general anesthesia" has a mean of 1.99, suggesting a higher number of "Don't know" responses.

Statements with means closer to "False" are: "After passing a special training program, the nurse can anesthetize patients under the supervision of an Anesthesiologist" (mean = 2.06), "All surgical procedures require the patient to undergo general anesthesia" (mean = 2.04), "The Anesthesiologist has extensive experience in pain management and dealing with pain resulting from surgical procedures" (mean = 1.95) and "There is a direct relationship between the possibility of anesthesia complications and the patient's poor health condition" (mean = 2.06). The statement with the highest mean, indicating the strongest agreement with being "False," is "General anesthesia often causes brain damage to the patient" with a mean of 2.21.

The standard deviations for all statements are moderately high, ranging from 0.545 to 0.921. This indicates a clear variability in responses, suggesting that for many of these statements, there is not a strong agreement among the participants and a significant number might have answered "Don't know".

The data suggests that participants generally recognize the truthfulness of local anesthesia being sufficient for some procedures and the importance of the Anesthesiologist knowing the patient's medical history. There is more disagreement regarding the roles of nurses in administering anesthesia, the necessity of general anesthesia for all surgeries, the prevalence of certain side effects, the specifics of pre-operative fasting and the potential for awareness or brain damage during general anesthesia in presented Figure 5.

Table 7 presents the results of independent samples t-tests conducted to examine the differences in participants' knowledge and perceptions towards anesthesia and anesthesiologists based on gender. For the dependent variable "Perceptions about Anesthesiologist role and responsibilities," the average scores were 7.05 for males and

Table 7: Results of the Independent Samples Test to Examine the Difference in Participants' Knowledge and Perception Towards Anesthesia and Anesthesiologists Based on Gender

Dependent variable	Gender	Number	Mean	Std. Deviation	T (594)	Level of significance
Perceptions about Anesthesiologist role and responsibilities	Male	238	7.05	1.58	-0.239	0.811
	Female	358	7.08	1.37		
Perceptions about Anesthesiologists' education and training	Male	238	7.95	2.02	-2.058	0.040
	Female	358	8.30	1.97		
Trust in physicians and Anesthesiologists	Male	238	7.30	2.17	-1.738	0.083
	Female	358	7.63	2.32		
Concerns or fears about anesthesia	Male	238	23.62	5.46	4.420	0.000
	Female	358	21.43	6.23		
Knowledge related to anesthesia	Male	238	25.70	7.57	0.768	0.443
	Female	358	25.22	7.36		

Table 8: One-way ANOVA Results to Examine the Differences in Participants' Knowledge and Perception Towards Anesthesia and Anesthesiologists Based on Education

Dependent variables Education		Number	Mean	Std. Deviation	F (595)	Level of significance
Perceptions about Anesthesiologist role and responsibilities	Did not attend school	4	6.25	1.89	0.811	0.542
	Primary school	5	7.80	2.49		
	Middle school	17	7.12	2.52		
	High school	130	7.02	1.44		
	Collegiate	46	6.85	1.53		
	Post-Graduate	394	7.11	1.38		
Perceptions about Anesthesiologists' education and training	Did not attend school	4	7.75	2.63	0.783	0.562
	Primary school	5	9.20	2.39		
	Middle school	17	8.35	2.50		
	High school	130	8.24	2.15		
	Collegiate	46	8.50	2.01		
	Post-Graduate	394	8.08	1.91		
Trust in physicians and Anesthesiologists	Did not attend school	4	6.75	2.22	1.757	0.120
	Primary school	5	9.00	1.87		
	Middle school	17	8.12	2.80		
	High school	130	7.81	2.58		
	Collegiate	46	7.04	2.14		
	Post-Graduate	394	7.41	2.14		
Concerns or fears about anesthesia	Did not attend school	4	17.50	2.65	0.976	0.432
	Primary school	5	21.00	10.65		
	Middle school	17	22.18	7.34		
	High school	130	22.44	6.23		
	Collegiate	46	21.13	4.99		
	Post-Graduate	394	22.47	5.96		
Knowledge related to anesthesia	Did not attend school	4	25.75	3.78	1.280	0.271
	Primary school	5	24.80	9.68		
	Middle school	17	27.82	9.26		
	High school	130	25.90	7.76		
	Collegiate	46	23.22	6.47		
	Post-Graduate	394	25.41	7.34		

7.08 for females. The t-statistic was -0.239, with a level of significance of 0.811. This indicates that there was no statistically significant difference in perceptions about the anesthesiologist's role and responsibilities between male and female participants. Regarding "Perceptions about Anesthesiologists' education and training," the mean score for males was 7.95, while females scored 8.30. The t-statistic was -2.058, with a level of significance of 0.040. Female participants scored significantly higher than male participants in their perceptions about the education and training of anesthesiologists. Concerning "Trust in physicians and Anesthesiologists," the average score for males was 7.30 and for females, it was 7.63. The t-statistic was -1.738, with a level of significance of 0.083. While females exhibited a slightly higher average trust level, this difference was not statistically significant at the 0.05 level. For "Concerns or fears about anesthesia," the mean score for males was 23.62 and for females, it was 21.43. The t-statistic was 4.420, with a level of significance of 0.000. Male participants reported significantly higher levels of concerns or fears about anesthesia compared to female participants. For "Knowledge related to anesthesia," the average score for males was 25.70 and for females, it was 25.22. The t-statistic was 0.768, with a level of significance of 0.443. This indicates that there was no statistically significant difference in knowledge related to anesthesia between male and female participants.

Table 8 presents the results of one-way ANOVA tests conducted to examine the differences in participants' knowledge and perception towards anesthesia and anesthesiologists based on their level of education.

For the dependent variable "Perceptions about Anesthesiologist role and responsibilities," the average scores varied across the different education levels: Did not

Table 9: One-Way ANOVA Results to Examine the Differences in Participants' Knowledge and Perception Towards Anesthesia and Anesthesiologists Based on Previous Surgeries

Dependent variable Previous surgeries		Number	Mean	Std. Deviation	F (595)	Level of significance
Perceptions about Anesthesiologist role and responsibilities	None	351	7.06	1.458	0.681	0.564
	One surgery	131	7.21	1.508		
	Two surgeries	59	6.90	1.386		
	Three or more surgeries	55	7.02	1.421		
Perceptions about Anesthesiologists' education and training	None	351	7.94	1.902	6.198	0.000
	One surgery	131	8.20	2.066		
	Two surgeries	59	8.54	2.003		
	Three or more surgeries	55	9.07	2.107		
Trust in physicians and Anesthesiologists'	None	351	7.48	2.303	0.623	0.600
	One surgery	131	7.56	2.205		
	Two surgeries	59	7.78	2.101		
	Three or more surgeries	55	7.22	2.362		
Concerns or fears about anesthesia	None	351	22.07	6.334	0.457	0.713
	One surgery	131	22.57	5.529		
	Two surgeries	59	22.73	5.747		
	Three or more surgeries	55	22.73	5.506		
Knowledge related to anesthesia	None	351	25.56	7.613	0.806	0.491
	One surgery	131	25.10	7.345		
	Two surgeries	59	26.31	7.509		
	Three or more surgeries	55	24.31	6.455		

attend school (6.25), Primary school (7.80), Middle school (7.12), High school (7.02), Collegiate (6.85) and post-graduate (7.11). The F-statistic was .811, with a level of significance of 0.542. This indicates that there were no statistically significant differences in perceptions about the anesthesiologist's role and responsibilities based on the participants' level of education.

Regarding "Perceptions about Anesthesiologists' education and training," the mean scores were: Did not attend school (7.75), Primary school (9.20), Middle school (8.35), High school (8.24), Collegiate (8.50) and post-graduate (8.08). The F-statistic was .783, with a level of significance of 0.562. This shows that there were no statistically significant differences in perceptions about the education and training of anesthesiologists based on the participants' level of education.

Concerning "Trust in physicians and Anesthesiologists," the average scores for the education levels were: Did not attend school (6.75), Primary school (9.00), Middle school (8.12), High school (7.81), Collegiate (7.04) and Post-Graduate (7.41). The F-statistic was 1.757, with a level of significance of .120. This indicates that there were no statistically significant differences in trust in physicians and anesthesiologists based on the participants' level of education.

For the dependent variable "Concerns or fears about anesthesia," the average scores across the education levels were: Did not attend school (17.50), Primary school (21.00), Middle school (22.18), High school (22.44), Collegiate (21.13) and post-graduate (22.47). The F-statistic was 0.976, with a level of significance of 0.432. This indicates that there were no statistically significant differences in the level of concerns or fears about anesthesia based on the participants' level of education.

Regarding "Knowledge related to anesthesia," the mean scores for the different education levels were: Did not attend school (25.75), Primary school (24.80), Middle school (27.82), High school (25.90), Collegiate (23.22) and post-graduate (25.41). The F-statistic was 1.280, with a level of significance of 0.271. This shows that there were no statistically significant differences in the level of knowledge related to anesthesia based on the participants' level of education.

The results indicate that for all dependent variables (Perceptions about Anesthesiologist role and responsibilities, Perceptions about Anesthesiologists' education and training, Trust in physicians and Anesthesiologists, Concerns or fears about anesthesia and Knowledge related to anesthesia), there were no statistically significant differences based on the participants' level of education. While the average scores varied across the different educational groups, these variations were not large enough to be considered statistically significant.

Table 9 presents the results of one-way ANOVA tests conducted to examine the differences in participants' knowledge and perception towards anesthesia and anesthesiologists based on their previous surgical experience. For the dependent variable "Perceptions about Anesthesiologist role and responsibilities," the average scores for the different previous surgery groups were: None (7.06), One surgery (7.21), Two surgeries (6.90) and Three or more surgeries (7.02). The F-statistic was 0.681, with a level of significance of .564. This indicates that there were no statistically significant differences in perceptions about the anesthesiologist's role and responsibilities based on the number of previous surgeries.

Regarding "Perceptions about Anesthesiologists' education and training," the mean scores were: None (7.94), One surgery (8.20), Two surgeries (8.54) and Three or more surgeries (9.07). The F-statistic was 6.198, with a level of significance of 0.000. This shows that there were statistically significant differences in perceptions about the education and training of anesthesiologists based on the number of previous surgeries.

Table 10: Chi-Square Results to Examine the Association Between Level of Knowledge About Anesthesia and Gender

Statements	χ^2	Level of Significance
1-A healthcare practitioner who holds a Bachelor's degree in Medicine and General Surgery and has then completed his medical training in the field of anesthesia.	0.850	0.654
2-After passing a special training program, the nurse can anesthetize patients under the supervision of an Anesthesiologist.	0.308	0.857
3-The Anesthesiologist has extensive experience in pain management and dealing with pain resulting from surgical procedures.	1.35	0.509
4-An Anesthesiologist can give a woman an epidural during labor.	13.63	0.001
5-All surgical procedures require the patient to undergo general anesthesia.	0.973	0.615
6-Some surgical procedures can be performed under local anesthesia without the need for general anesthesia.	1.36	0.505
7-It is essential for the Anesthesiologist to be familiar with the patient's medical history, including all medications the patient is taking before undergoing surgery.	2.73	0.255
8-Pre-operative fasting means not taking anything by mouth.	0.190	0.909
9-Pre-operative fasting means not taking anything by mouth except water.	0.377	0.828
10-In general, anesthesia is a largely safe medical procedure.	1.35	0.509
11-General anesthesia often causes brain damage to the patient.	5.22	0.073
12-There is a direct relationship between the possibility of anesthesia complications and the patient's poor health condition.	5.05	0.080
13-Vomiting and nausea are common side effects of general anesthesia.	16.42	0.000
14-The patient may be aware of what is happening around him while under general anesthesia.	0.645	0.724

Concerning "Trust in physicians and Anesthesiologists," the average scores for the previous surgery groups were: None (7.48), One surgery (7.56), Two surgeries (7.78) and Three or more surgeries (7.22). The F-statistic was 0.623, with a level of significance of 0.600. This indicates that there were no statistically significant differences in trust in physicians and anesthesiologists based on the number of previous surgeries.

For "Concerns or fears about anesthesia," the mean scores were: None (22.07), One surgery (22.57), Two surgeries (22.73) and Three or more surgeries (22.73). The F-statistic was 0.457, with a level of significance of 0.713. This indicates that there were no statistically significant differences in the level of concerns or fears about anesthesia based on the number of previous surgeries.

For "Knowledge related to anesthesia," the average scores for the previous surgery groups were: None (25.56), One surgery (25.10), Two surgeries (26.31) and Three or more surgeries (24.31). The F-statistic was 0.806, with a level of significance of 0.491. This shows that there were no statistically significant differences in the level of knowledge related to anesthesia based on the number of previous surgeries.

The results indicate a statistically significant difference based on previous surgeries only for "Perceptions about Anesthesiologists' education and training," with participants having more surgeries tending to have a more positive perception. For the other dependent variables, there were no statistically significant differences based on the number of previous surgeries.

Table 10 presents the results of Chi-Square tests conducted to examine the association between the level of knowledge about specific anesthesia-related statements and the gender of the participants.

For the statement "A healthcare practitioner who holds a Bachelor's degree in Medicine and General Surgery and has then completed his medical training in the field of anesthesia," the Chi-Square statistic (χ^2) is 0.850 with a level of significance of 0.654. This indicates no statistically significant association between the belief in this statement and the participant's gender. Regarding the statement "After passing a special training program, the nurse can anesthetize patients under the supervision of an Anesthesiologist," the χ^2 value is 0.308 with a significance level of 0.857. This suggests no statistically significant association between the agreement with this statement and gender. For "The Anesthesiologist has extensive experience in pain management and dealing with pain resulting from surgical procedures," the χ^2 is 1.35 with a significance level of 0.509, indicating no significant association with gender. Concerning "An Anesthesiologist can give a woman an epidural during labor," the χ^2 is 13.63 with a significance level of 0.001. This demonstrates a statistically significant association between gender and the belief in this statement. For "All surgical procedures require the patient to undergo general anesthesia," the χ^2 is 0.973 with a significance level of 0.615, showing no significant association with gender. Regarding "Some surgical procedures can be performed under local anesthesia without the need for general anesthesia," the χ^2 is 1.36 with a significance level of 0.505, indicating no significant association with gender. For "It is essential for the Anesthesiologist to be familiar with the patient's medical history, including all medications the patient is taking before undergoing surgery," the χ^2 is 2.73 with a significance level of 0.255, showing no significant association with gender. Concerning "Pre-operative fasting means not taking anything by mouth," the χ^2 is 0.190 with a significance level of 0.909, indicating no significant association with gender. For "Pre-operative fasting means not taking anything by mouth except water," the χ^2 is 0.377 with a significance level of 0.828, showing no significant association with gender. Regarding "In general, anesthesia is a largely safe medical procedure," the χ^2 is 1.35 with a significance level of 0.509, indicating no significant association with gender. For "General anesthesia often causes brain damage to the patient," the χ^2 is 5.22 with a significance level of 0.073. This suggests a trend towards a significant association with gender but it does not reach the

Table 11: Chi-Square Results to Examine the Association Between Level of Knowledge About Anesthesia and Educational Level

Statements	χ^2	Level of significance
1-A healthcare practitioner who holds a Bachelor's degree in Medicine and General Surgery and has then completed his medical training in the field of anesthesia.	15.28	1.22
2-After passing a special training program, the nurse can anesthetize patients under the supervision of an Anesthesiologist.	21.60	0.017
3-The Anesthesiologist has extensive experience in pain management and dealing with pain resulting from surgical procedures.	13.19	0.214
4-An Anesthesiologist can give a woman an epidural during labor.	15.47	0.116
5-All surgical procedures require the patient to undergo general anesthesia.	16.02	0.099
6-Some surgical procedures can be performed under local anesthesia without the need for general anesthesia.	43.16	0.000
7-It is essential for the Anesthesiologist to be familiar with the patient's medical history, including all medications the patient is taking before undergoing surgery.	25.54	0.004
8-Pre-operative fasting means not taking anything by mouth.	6.82	0.742
9-Pre-operative fasting means not taking anything by mouth except water.	8.45	0.585
10-In general, anesthesia is a largely safe medical procedure.	29.99	0.001
11-General anesthesia often causes brain damage to the patient.	18.37	0.049
12-There is a direct relationship between the possibility of anesthesia complications and the patient's poor health condition.	17.23	0.069
13-Vomiting and nausea are common side effects of general anesthesia.	17.57	0.063
14-The patient may be aware of what is happening around him while under general anesthesia.	11.82	0.297

conventional 0.05 threshold for statistical significance. Concerning "There is a direct relationship between the possibility of anesthesia complications and the patient's poor health condition," the χ^2 is 5.05 with a significance level of 0.080, also indicating a trend but not a statistically significant association with gender. For "Vomiting and nausea are common side effects of general anesthesia," the χ^2 is 16.42 with a significance level of 0.000. This demonstrates a statistically significant association between gender and the belief in this statement. For "The patient may be aware of what is happening around him while under general anesthesia," the χ^2 is 0.645 with a significance level of 0.724, showing no significant association with gender.

The Chi-Square tests reveal statistically significant associations between gender and the level of knowledge for two specific statements: whether an Anesthesiologist can give an epidural during labor and whether vomiting and nausea are common side effects of general anesthesia. the majority of the statements did not show a statistically significant association between the level of knowledge and the gender of the participants.

Table 11 presents the results of Chi-Square tests conducted to examine the association between the level of knowledge about specific anesthesia-related statements and the education level of the participants.

For the statement "A healthcare practitioner who holds a Bachelor's degree in Medicine and General Surgery and has then completed his medical training in the field of anesthesia," the Chi-Square statistic (χ^2) is 15.28 with a level of significance of 0.122. This indicates no statistically significant association between the belief in this statement and the participant's education level. Regarding the statement "After passing a special training program, the nurse can anesthetize patients under the supervision of an Anesthesiologist," the χ^2 value is 21.60 with a significance level of 0.017. This suggests a statistically significant association between the agreement with this statement and education level. For "The Anesthesiologist has extensive experience in pain management and dealing with pain resulting from surgical procedures," the χ^2 is 13.19 with a significance level of 0.116, indicating no significant association with education level. Concerning "An Anesthesiologist can give a woman an epidural during labor," the χ^2 is 15.47 with a significance level of .116, showing no significant association with education level.

For "All surgical procedures require the patient to undergo general anesthesia," the χ^2 is 16.02 with a significance level of 0.099, indicating no significant association with education level. Regarding "Some surgical procedures can be performed under local anesthesia without the need for general anesthesia," the χ^2 is 43.16 with a significance level of 0.000. This demonstrates a statistically significant association between education level and the belief in this statement. For "It is essential for the Anesthesiologist to be familiar with the patient's medical history, including all medications the patient is taking before undergoing surgery," the χ^2 is 25.54 with a significance level of 0.004, showing a statistically significant association with education level. Concerning "Pre-operative fasting means not taking anything by mouth," the χ^2 is 6.82 with a significance level of 0.742, indicating no significant association with education level. For "Pre-operative fasting means not taking anything by mouth except water," the χ^2 is 8.45 with a significance level of 0.585, showing no significant association with education level. Regarding "In general, anesthesia is a largely safe medical procedure," the χ^2 is 29.99 with a significance level of 0.001, indicating a statistically significant association with education level. For "General anesthesia often causes brain damage to the patient," the χ^2 is 18.37 with a significance level of 0.049. This suggests a trend towards a significant association with education level, nearing the conventional 0.05 threshold. Concerning "There is a direct relationship between the possibility of anesthesia complications and the patient's poor health condition," the χ^2 is 17.23 with a significance level of 0.069, also indicating a trend but not a statistically

Table 12: Chi-Square Results to Examine the Association Between Level of Knowledge About Anesthesia and Age

Statements	χ^2	Level of significance
1-A healthcare practitioner who holds a Bachelor's degree in Medicine and General Surgery and has then completed his medical training in the field of anesthesia.	16.59	0.035
2-After passing a special training program, the nurse can anesthetize patients under the supervision of an Anesthesiologist.	25.03	0.002
3-The Anesthesiologist has extensive experience in pain management and dealing with pain resulting from surgical procedures.	14.56	0.068
4-An Anesthesiologist can give a woman an epidural during labor.	19.69	0.010
5-All surgical procedures require the patient to undergo general anesthesia.	9.84	0.276
6-Some surgical procedures can be performed under local anesthesia without the need for general anesthesia.	24.90	0.002
7-It is essential for the Anesthesiologist to be familiar with the patient's medical history, including all medications the patient is taking before undergoing surgery.	14.46	0.071
8-Pre-operative fasting means not taking anything by mouth.	12.58	0.127
9-Pre-operative fasting means not taking anything by mouth except water.	10.82	0.212
10-In general, anesthesia is a largely safe medical procedure.	32.65	0.000
11-General anesthesia often causes brain damage to the patient.	8.93	0.035
12-There is a direct relationship between the possibility of anesthesia complications and the patient's poor health condition.	9.45	0.306
13-Vomiting and nausea are common side effects of general anesthesia.	12.87	0.116
14-The patient may be aware of what is happening around him while under general anesthesia.	10.54	0.229

significant association with education level. For "Vomiting and nausea are common side effects of general anesthesia," the χ^2 is 17.57 with a significance level of 0.063, showing a trend but not a statistically significant association with education level. For "The patient may be aware of what is happening around him while under general anesthesia," the χ^2 is 11.82 with a significance level of 0.297, showing no significant association with education level.

The Chi-Square tests reveal statistically significant associations between the level of knowledge and the education level of the participants for several statements: whether nurses can anesthetize under supervision, whether local anesthesia can be used for some procedures, the importance of the anesthesiologist knowing the patient's medical history and whether general anesthesia is largely safe. While the remaining statements did not show a statistically significant association between the level of knowledge and the education level of the participants.

Table 12 presents the results of Chi-Square tests conducted to examine the association between the level of knowledge about specific anesthesia-related statements and the age of the participants.

For the statement "A healthcare practitioner who holds a Bachelor's degree in Medicine and General Surgery and has then completed his medical training in the field of anesthesia," the Chi-Square statistic (χ^2) is 16.59 with a level of significance of 0.035. This indicates a statistically significant association between the belief in this statement and the participant's age. Regarding the statement "After passing a special training program, the nurse can anesthetize patients under the supervision of an Anesthesiologist," the χ^2 value is 25.03 with a significance level of 0.002. This suggests a statistically significant association between the agreement with this statement and age. For "The Anesthesiologist has extensive experience in pain management and dealing with pain resulting from surgical procedures," the χ^2 is 14.56 with a significance level of 0.068, indicating a trend towards a significant association with age. Concerning "An Anesthesiologist can give a woman an epidural during labor," the χ^2 is 19.69 with a significance level of 0.010. This demonstrates a statistically significant association between age and the belief in this statement. For "All surgical procedures require the patient to undergo general anesthesia," the χ^2 is 9.84 with a significance level of 0.276, showing no significant association with age.

Regarding "Some surgical procedures can be performed under local anesthesia without the need for general anesthesia," the χ^2 is 24.90 with a significance level of 0.002. This demonstrates a statistically significant association between age and the belief in this statement. For "It is essential for the Anesthesiologist to be familiar with the patient's medical history, including all medications the patient is taking before undergoing surgery," the χ^2 is 14.46 with a significance level of 0.071, indicating a trend towards a significant association with age. Concerning "Pre-operative fasting means not taking anything by mouth," the χ^2 is 12.58 with a significance level of 0.127, indicating no significant association with age. For "Pre-operative fasting means not taking anything by mouth except water," the χ^2 is 10.82 with a significance level of 0.212, showing no significant association with age. Regarding "In general, anesthesia is a largely safe medical procedure," the χ^2 is 32.65 with a significance level of 0.000. This indicates a statistically significant association between age and the belief in this statement. For "General anesthesia often causes brain damage to the patient," the χ^2 is 8.93 with a significance level of 0.035. This suggests a statistically significant association between age and the belief in this statement. Concerning "There is a direct relationship between the possibility of anesthesia complications and the patient's poor health condition," the χ^2 is 9.45 with a significance level of 0.306, showing no significant association with age. For "Vomiting and nausea are common side effects of general anesthesia," the χ^2 is 12.87 with a significance level of 0.116, indicating no significant

association with age. For "The patient may be aware of what is happening around him while under general anesthesia," the χ^2 is 10.54 with a significance level of 0.229, showing no significant association with age.

The Chi-Square tests reveal statistically significant associations between the level of knowledge and the age of the participants for several statements: the qualifications of an anesthesia practitioner, whether nurses can anesthetize under supervision, whether an anesthesiologist can give an epidural, whether local anesthesia can be used for some procedures, whether general anesthesia is largely safe and whether general anesthesia often causes brain damage. While the remaining statements did not show a statistically significant association between the level of knowledge and the age of the participants.

DISCUSSION

This study explored public perception and awareness regarding anesthesia and the role of anesthesiologists. Overall, the findings highlight a substantial knowledge gap and several prevalent misconceptions among participants. While most respondents demonstrated a basic understanding of the anesthesiologist's involvement in perioperative care, many lacked a detailed understanding of anesthesiologists' training, responsibilities and impact on patient safety. Trust in anesthetists was found to be moderate, with notable influences from gender, age, education and prior surgical experience.

Participants demonstrated a moderate understanding of anesthesiologists' roles, with over half correctly identifying them as responsible for patient recovery after surgery. This aligns with findings from the study 'Anesthesiologist: The Patient's Perception', which emphasized the underappreciation of anesthesiologist roles [8]. These findings indicate that many participants have a good understanding of the anesthesiologist's duties, showing a generally strong level of awareness.

Our study has shown limited awareness of anesthesiology training, with only 30.5% identifying it correctly. Similar findings were noted worldwide in Portugal and locally in Saudi Arabia, where the majority failed to recognize the length of anesthesiology training [8,9]. Improving public understanding of anesthesiologists' training can boost trust in anesthesia providers during surgery, because patients who know their anesthesiologist is highly trained will feel safer and more confident during procedures. We can include brief bios or training overviews on hospital walls, websites or pre-operative materials.

Additionally, our study has highlighted patients' concerns about anesthesia, including needle fear, headache and memory loss. These concerns are common and supported by research articles in the literature [10,11]. Needle phobia is well-documented in medical settings and is especially common among younger people and those with prior negative experiences [12]. Other concerns include postoperative headache, memory loss, fear of pain, death during anesthesia and brain damage. Although Death during anesthesia is rare, these concerns are a result of a lack of understanding how anesthesia works, negative stories, general anxiety or medical phobia [13]. A crucial need for interventions to lower procedural anxiety, such as topical anesthetics or distraction methods.

Surprisingly, our study found that while men and women have a similar understanding of anesthesiologists' roles, significant gender differences emerged in other areas. Contrary to the literature, males reported greater fear of anesthesia. This contrasts sharply with previous literature, such as the study by Nigussie, which showed that female patients generally report higher levels of preoperative anxiety and fears related to anesthesia [14]. A similar conclusion was found by Caumo *et al.* [13], who noted that women were more anxious and fearful before surgery [15]. Our findings differ from these results and may suggest that, although female patients might display more anxiety in clinical settings, in broader community perceptions, males could internalize more fear or uncertainty about anesthesia due to sociocultural or informational factors. This reveals a possible disconnect between clinical anxiety and general perception, highlighting the need for more gender-sensitive approaches in community education and reassurance strategies, especially aimed at male populations.

Another unexpected finding revealed that postgraduates did not perform better than middle or high school graduates. This result has also been observed in a study from China, which analyzed over 1 million participants [16]. Even if our societies have a prestigious and strong educational industry that graduates thousands of people yearly, continuous awareness and learning are needed for all individuals with diverse backgrounds in the community.

This study's strength lies in its comprehensive exploration of demographic influences, age, gender, education and prior surgeries on public perception. Findings guide targeted educational strategies, including the use of infographics and preoperative counseling. Emphasizing anesthesiologists' qualifications may enhance patient trust. Limitations include the cross-sectional design, reliance on self-reported data and gender imbalance in the sample. Surgical experience was not classified by type and confounding factors like cultural background and health literacy were not controlled. Future studies should use qualitative interviews to explore demographic influences in depth. Interventional research using educational tools could assess changes in perception. Public campaigns should be inclusive of all education levels, as prior academic background does not guarantee a better understanding.

CONCLUSIONS

This study reveals a considerable public misunderstanding about anesthesiology. Demographic factors such as gender, age and prior experience influence trust and knowledge. Addressing these gaps through structured, inclusive education will improve patient trust, communication and outcomes.

Conflicts of Interest

The authors have no conflict of interest.

REFERENCES

[1] Mathis M.R. *et al.* "Opportunities beyond the Anesthesiology Department: Broader Impact through Broader Thinking." *Anesthesia & Analgesia*, vol. 134, no. 2, 2022, pp. 242-252. https://doi.org/10.1213/ANE.0000000000005219.

[2] Robinson D.H. and A.H. Toledo. "Historical Development of Modern Anesthesia." *Journal of Investigative Surgery*, vol. 25, no. 3, 2012, pp. 141-149. https://doi.org/10.3109/08941939.2012.671307.

[3] Hausman L.M. *et al.* "Types of Office-Based Anesthetics." *Mount Sinai Journal of Medicine*, vol. 79, no. 1, 2012, pp. 107-115. https://doi.org/10. 1002/msj.21296.

[4] Metzner J. *et al.* "Closed Claims Analysis." *Best Practice & Research Clinical Anaesthesiology*, vol. 25, no. 2, 2011, pp. 263-276. https://doi.org/10.1016/j.bpa.2011.02.008.

[5] Almutairi N.G. *et al.* "Public Knowledge and Perception of Anesthesia, Anesthesiologists' Expertise and Their Role among Saudi Citizens Residing in Saudi Arabia." *Cureus*, vol. 15, no. 8, 2023, p. e44657. https://doi.org/10.7759/cureus.44657.

[6] Ribeiro C.S. and J.I. de B. Mourão. "Anesthesiologist: The Patient's Perception." *Brazilian Journal of Anesthesiology (English Edition)*, vol. 65, no. 6, 2015, pp. 497-503. https://doi.org/10.1016/j.bjane.2014.05.006.

[7] Bazaid A. *et al.* "Public Awareness about the Role of Anesthesiologists in Jeddah, Saudi Arabia: A Cross-Sectional Study." *Cureus*, vol. 17, no. 4, 2025, p. e83245. https://doi.org/10.7759/cureus.83245.

[8] Mohan B. *et al.* "Anesthesiologist's Role in Relieving Patient's Anxiety." *Anesthesia: Essays and Researches*, vol. 11, no. 2, 2017, pp. 449-454. https://doi.org/10.4103/aer.AER_25_17.

[9] Joudi N. and J. Ansari. "Postpartum Headaches after Epidural or Spinal Anesthesia." *Current Opinion in Obstetrics & Gynecology*, vol. 33, no. 2, 2021, pp. 94-99. https://doi.org/10.1097/GCO.0000000000000708.

[10] Ali F.M. *et al.* "Nature and Prevalence of Needle Phobia among Dental College Patients." *Journal of Dental Research and Review*, vol. 2, no. 3, 2015, pp. 130-133. https://doi.org/10.4103/2348-2915.162705.

[11] Braz L.G. *et al.* "Mortality in Anesthesia: A Systematic Review." *Clinics*, vol. 64, no. 10, 2009, pp. 999-1006. https://doi.org/10.1590/S1807-59322009001000011.

[12] Nigussie S. *et al.* "Predictors of Preoperative Anxiety among Surgical Patients in Jimma University Specialized Teaching Hospital, South Western Ethiopia." *BMC Surgery*, vol. 14, 2014, p. 67. https://doi.org/10.1186/1471-2482-14-67.

[13] Caumo W. *et al.* "Risk Factors for Preoperative Anxiety in Adults." *Acta Anaesthesiologica Scandinavica*, vol. 45, no. 3, 2001, pp. 298-307. https://doi.org/10.1034/j.1399-6576.2001.045003298.x.

[14] Ma Y. *et al.* "Public Knowledge and Awareness of Anesthesiology and Anesthesiologists in China: A Cross-Sectional National Survey of 1 Million Participants." *Anesthesia & Analgesia*, vol. 138, no. 4, 2024, pp. 829-838. https://doi.org/10.1213/ANE.0000000000006604.

[15] Raosoft Inc. *Sample Size Calculator*. Seattle, 2004, www.raosoft.com/samplesize.html. Accessed July 2025.

[16] Mathis M.R. *et al.* "Opportunities beyond the Anesthesiology Department: Broader Impact through Broader Thinking." *Anesthesia & Analgesia*, vol. 134, no. 2, 2022, pp. 242-252. https://doi.org/10.1213/ANE.0000000000005219.