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ORIGINAL RESEARCH ARTICLE

Perceptions and Knowledge of Anaesthesiology Among Medical Undergraduates: A Survey of Career Pathways and Influences

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ABSTRACT

Introduction: Anaesthesiology is a critical yet often underrecognized medical specialty, playing a vital role in patient safety, perioperative care, and pain management. Despite its importance, many medical students lack awareness of its scope, leading to low interest in pursuing it as a career. This study aimed to evaluate the perceptions and knowledge of anaesthesiology among undergraduate medical students in India and identify factors influencing their career choices.

Material and Methods: A cross-sectional online survey was conducted among 137 medical students and interns from various institutions across India. The questionnaire assessed demographic details, knowledge of anaesthesiology, career preferences, and factors affecting specialty selection.

Results: Results revealed that while 81.6% of respondents acknowledged anaesthesiology as a life-saving specialty, only 34.3% considered it as a career option. Key deterrents included limited patient interaction (31.3%), lack of recognition (20.4%), and insufficient exposure during training (18.9%). Conversely, motivators such as work-life balance (25%), growing demand (39%), and diverse clinical roles (20%) were cited by those interested in the field. Exposure to anaesthesiology significantly influenced perceptions, with 45.3% of students who had clinical postings expressing greater interest. Gender differences were observed, with female students prioritizing work-life balance while male students emphasized income and recognition. Early clinical exposure and mentorship were identified as crucial factors in shaping career decisions.

Conclusion: The study highlights the need for curriculum reforms, increased visibility of anaesthesiology in undergraduate training, and targeted awareness campaigns to address misconceptions. Enhancing early exposure and mentorship could attract more students to this essential specialty, addressing global workforce shortages and improving healthcare delivery.

Keywords: Anaesthesiology, Medical undergraduates, Career perceptions, Specialty choice, Clinical exposure, Workforce shortage.

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INTRODUCTION

Anaesthesiology is a cornerstone of contemporary medicine, extending beyond the operating theatre to encompass the overall care of patients' physiological stability and psychological comfort during surgery, intensive care, and other diagnostic or therapeutic interventions. The specialty's core tasks—relieving pain, sustaining vital organ function, and maintaining homeostasis—are essential to the success of medical and surgical procedures, as well as to ensuring patient safety and well-being throughout their illness.

Once viewed primarily as a branch for inducing and maintaining unconsciousness during surgery, anaesthesiology has evolved into a mature discipline with diversified roles, including intensive care medicine, pain management, perioperative medicine, trauma services, and subspecialties such as cardiac, neuro, pediatric, and oncological anesthesia. Despite its scope and critical contributions, anaesthesiology remains underrecognized, often working behind the scenes. This lack of visibility contributes to widespread misconceptions about its nature—not only among the public but also among medical students. Undergraduate exposure to anaesthesiology is often minimal, leaving students unaware of its intellectual rigor and clinical versatility. Medical career choices are influenced by personal interests, clinical rotations, mentorship, work-life balance, and financial factors, including salary and job stability. Consequently, anaesthesiology is frequently overlooked as a career, contributing to workforce imbalances in a field of growing healthcare importance.

In this context, it is vital to assess how future doctors perceive anaesthesiology and how educational methods shape their attitudes. Enhancing visibility and addressing misconceptions at the undergraduate level can empower

students to make informed decisions about their careers. This research evaluates medical students' knowledge of anaesthesiologists' roles and responsibilities and their overall impressions of anaesthesiology as a career. It aims to identify key influences on specialty preference and uncover barriers or misconceptions that deter interest in these specialties. Our findings aim to guide educators and policymakers in raising the specialty's profile and ensuring a well-distributed, robust anesthesia workforce to meet modern healthcare demands.

MATERIAL AND METHODS

A descriptive cross-sectional study was conducted using an online survey to assess the knowledge and perceptions of anaesthesiology among undergraduate medical students across India. Data collection was conducted over a three-month period, from February 2025 to April 2025. The primary objective was to evaluate the level of awareness regarding the role of an anaesthesiologist and to understand students' perspectives on anesthesia as a potential career choice. Informed consent was obtained from all participants virtually through the questionnaire distributed via the Google Forms platform.

The study targeted undergraduate M.B.B.S. students and interns enrolled in medical colleges across India. The inclusion criteria specified participation by students currently pursuing their M.B.B.S. degree or undergoing internship training. Individuals who had completed or were currently enrolled in postgraduate medical programs, as well as those who were not planning to pursue postgraduation, were excluded. Additionally, responses that were incomplete, inaccurate, or submitted without informed consent were also excluded from the analysis to maintain data quality and integrity.

The study did not involve any patient data, and participation in the survey was entirely voluntary. Consent was obtained through the Google Forms platform prior to participation, and all responses were treated with strict confidentiality.

The data collection tool—a structured questionnaire—has been attached as an annexure to the study protocol. A questionnaire was distributed electronically via WhatsApp. Participants were also encouraged to share the link with their peers to maximize reach and participation. The questionnaire was structured to capture essential information across five distinct sections, including demographic data, knowledge about anesthesia and anaesthesiologists, career preferences, reasons for not considering anesthesia as a career, and the various internal and external factors influencing specialty choice.

The first section of the questionnaire included informed consent. The second section collected demographic information, including age, gender, and academic background. The third section assessed the participants' understanding of anesthesia and the role of anesthesiologists in clinical practice. The fourth section explored students' preferences for medical specialties and their perceptions of anesthesia as a future career. The fifth and final section addressed the determinants influencing specialty choice, especially among respondents who expressed a negative or uncertain view of anesthesia as a profession.

Once data collection was complete, responses were coded and analyzed using descriptive statistics. Frequency distributions and graphical tools were employed to summarize the data and highlight key trends in student knowledge and perceptions regarding anaesthesiology.

RESULTS

The survey was conducted among 137 undergraduate medical students from SRMS Institute of Medical Sciences and various medical colleges across India. The respondents were composed of 55.8% males and 44.2% females, with participants representing different academic years (1st to Internship). Geographically, 41.7% were from Uttar Pradesh, followed by Bihar (12.5%), Delhi (8.3%), Haryana (8.3%), and Rajasthan (8.3%).

Awareness and Perception of Anaesthesiology

A majority of respondents (81.6%) recognized anesthesia as a life-saving and essential branch of medicine. However, only 34.3% of the students expressed interest in pursuing it as a career. Notably, 31.3% cited limited patient interaction, and 20.4% cited lack of recognition as a primary deterrent.

When asked about the role of an anaesthesiologist, 78.1% correctly stated their involvement in surgical and ICU settings, while 10.9% incorrectly believed anaesthesiologists had no role in the operating theatre. About 2% of the students admitted to not know the role.

Exposure to Anesthesiology

Approximately 50% of respondents reported having exposure to anaesthesiology, primarily through clinical postings in settings like the operating theatre (OT) and intensive care unit (ICU), personal experiences such as undergoing surgery under anaesthesia, or family connections with professionals in the field. The remaining 50% had no exposure, a group largely composed of 1st and 2nd year students. Some in this group noted they had "never met an anaesthesiologist," highlighting gaps in early clinical engagement with the specialty.

Exposure and Influence of Clinical Postings

Only 10.2% of respondents reported more than two weeks of hands-on exposure to anesthesia. Among those with

such exposure, 45.3% reported an increased interest in the specialty, highlighting the importance of clinical postings in shaping perceptions.

Factors Influencing a Career in Anaesthesiology

Key motivators for considering anaesthesiology included growing demand and recognition (39%), work-life balance (25%), diverse exposure (20%), a critical role in emergencies (15%), and no mandatory super-specialization (5%). Female students cited better work-life balance, while male students were more influenced by income and recognition concerns.

The key factors dissuading a career in anaesthesiology included reasons for lack of recognition (30%), financial concerns (25%), stressful work (20%), no opd exposure (15%), dependence on surgeons (10%).

Around 20% of undecided respondents cited the reason for their indecision as they believed in the need for more exposure (e.g., postings, mentorship) to frame a decision and their interest in research/teaching opportunities.

Year-wise Shift in Attitude

First and second-year students displayed greater uncertainty and disinterest, often attributing this to lack of exposure. Final-year students and interns with more practical experience showed more positive attitudes and better understanding.

DISCUSSION

Anesthesiology is a multidimensional specialty whose dimensions are not restricted to the operating room alone. Anaesthesiologists play a critical role in patient safety during the entire perioperative process. Their multidimensional role extends to managing acute and chronic pain, handling intensive care units, responding to life-threatening emergencies (responding to code blue calls) and administering sedation for investigative and diagnostic procedures outsides the realms of the ORs. They also carry out preoperative assessments while perioperatively optimizing patients for surgery and providing care after interventions. Additionally, anesthetists contribute significantly to clinical research, as well as the education and training of future healthcare providers and leaders. To ascertain how undergraduate students view anesthesiologists and anesthesiology as a career, we conducted a cross-sectional study and an online survey among medical students about their postgraduate career choices, particularly focusing on anesthesiology. With a balanced mix of genders and a wide geographic representation, our dataset gives a clear picture of current awareness and career considerations in this specialty (Table 1).

While a section of students (43%) acknowledged that anaesthesiology is a life-saving and essential arm of medical science, thereby highlighting the clinical importance of the specialty, 57% of undergraduates were not completely aware of the anaesthesiologist's role and responsibilities (Table 2). Close to a third of respondents (34.3%) expressed interest in anaesthesiology as a possible future career. The majority cited limited patient interaction (31.3%) and lack of recognition (20.4%) as deterrents in selecting anaesthesiology. Furthermore, only one-tenth (10.2%) of students admitted to a meaningful clinical exposure to anesthesia, with the rest reporting brief or no meaningful interaction with the specialty. These findings echo those of Bhar *et al*., who had also observed that poor undergraduate exposure significantly affected postgraduate specialty choices.[1]

Among respondents who expressed interest in pursuing anesthesiology (~20%), the primary motivating factors included the growing demand of anesthesiologists and recognition of the specialty amongst the general public (39%), with many acknowledging its expanding role in current and future healthcare. Another key factor identified was better work-life balance (25%), as anesthesiology offered predictable job profile timings with lesser physical strain compared to surgical fields. Additionally, a diverse clinical profile (20%)—spanning

Table 1: Demographic profile

Parameter	*Number*	*Percentage (%)*
Gender		
Male	76	55.8
Female	61	44.2
Academic year		
1st year	36	28.3
2nd year	52	40.9
Final year part I/II	32	25.2
Internship	7	5.5

Table 2: Perception of anaesthesiologist's role

Specialization	*Responses*
Administering anesthesia/managing patient safety during surgery	29 (21.5%)
Manages critical patients in ICU	18 (13.3%)
Reviving patients in code blue calls	
Pain management in cancer and non-cancer patients	24 (17.8%)
	3 (2.2%)
Don't know	57 (41.60%)

Table 3: Perceived patient awareness

Level of Awareness	*Number*	*Percentage (%)*
Very high	4	2.9
Moderate	43	31.4
Low	70	51.1
Very low	20	14.6

Table 4: Anaesthesia as a career choice: Distribution (%)

MBBS year	*Gender*	*Yes*	*No*	*Maybe*
1st year	Male	12	68	20
	Female	18	52	30
2nd year	Male	17	63	20
	Female	23	53	24
3rd year	Male	15	65	20
	Female	21	59	20
4th Intern	Male	22	58	20
	Female	28	52	20

Table 5: Factors discouraging choice of anaesthesia

Reason	*Number*	*Percentage (%)*
Limited patient interaction	43	31.3
Lack of recognition	28	20.4
Less exposure during MBBS	26	18.9
Stressful nature	15	10.9
Inadequate mentorship	13	9.5
Others	12	8.7

elective and emergency cases across multiple specialties—was seen as an attractive proposition. A small fraction (5%) acknowledged the fact that an anaesthesiologist does not need to super-specialize, translating into an early onset of income and a more flexible career path.

For those who ruled out anesthesiology as a probable future specialty(~60%), the most common deterrent was the lack of recognition (30%), with many describing the role as a "behind-the-scenes" trade and noting that patients often remain unaware of the anesthesiologist's critical contribution. Financial concerns (25%) also play a role, as some believed the specialty offers lower remuneration compared to surgical/medical specialties for the enormity of work done by an anesthesiologist. Another significant factor was the stressful work environment (20%), characterized by erratic schedules and the high-stakes nature of procedures. Limited outpatient (OPD) exposure (15%) also reduced interest among students who preferred sustained patient interaction, while a minority (10%) cited being dependent on surgeons as a major drawback, perceiving a lack of autonomy and pressure in decision-making (Table 3).

Exposure to clinical anaesthesiology and clinical postings played a significant role in shaping perceptions. Among third- and fourth-year students who had clinical postings in OT or ICU settings, resultant interest in Anaesthesiology was higher, highlighting and reinforcing the impact of hands-on clinical experience. The significant role of clinical exposure was also demonstrated by Kondikar *et al*., wherein students who attended anesthesia postings found the specialty interesting and life-saving.[2] In our study, 45.3% of students who had hands-on exposure expressed greater openness to choosing anesthesia as a career.

Gender-specific analysis in our study showed that female students were more likely to consider Anaesthesiology (Table 4), primarily due to work-life balance and the absence of mandatory super-specialization. Conversely, male respondents cited lower income and a lack of societal recognition as deterrents. This mirrors findings from Pradhan *et al*., where lifestyle factors and job security were key motivators for students choosing anesthesia, whereas limited exposure and lack of perceived prestige were major barriers.[3] Additionally, a study by Manjooran *et al.* on similar aspects as ours revealed that female anesthetists valued manageable work schedules and part-time opportunities, echoing and underlining the gender-differentiated insights observed in our survey.[4]

Furthermore, students' perceptions of how patients understand and perceive anaesthesiology, as well as the importance of anaesthesiologists, also influenced their career considerations. Over 80% believed that patients had a "moderate" to "very low" awareness of anaesthesiology. Such perceptions likely affect students' own valuation of the specialty. Studies from Ethiopia and France support this notion, showing that a lack of public awareness and misperceptions contribute to the low status of anesthesia within the healthcare hierarchy.[5,6]

Interestingly, our study aligns with findings that limited visibility and understanding of anesthesia contribute to its lower preference as a postgraduate specialty. A systematic review by Okeke *et al*., highlighted similar trends globally, where only 178 out of 2,135 medical students expressed an interest in anaesthesiology, often deterred by a perceived lack of recognition, limited patient interaction, and low financial incentives.[7]

When discussing factors influencing career (Table 5) motivations, students pointed to intellectually challenging job profiles (44%), proficiency in procedural skills (39.6%), and future opportunities abroad (36.3%) as potential incentives for choosing a career and anesthesia in particular. Asad *et al.* found that 65.9% of anesthesia professionals chose the field due to the opportunity to perform procedures.[8]

The study also highlighted a shift in perception across the years of medical training. First- and second-year students were more uncertain and less inclined toward anaesthesiology, often citing insufficient information or exposure. In contrast, final-year students and interns who had direct interaction with the specialty showed increased interest and a more nuanced understanding. This reinforces the importance of integrating anaesthesiology more thoroughly into the undergraduate curriculum.

Recommendations for Anesthesiology Career Promotion

Anesthesiology is a specialty with significant strengths, including high demand (due to rising surgical and critical care needs), a controlled work environment (structured schedules, OT sterility), and diverse clinical exposure (surgery, ICU, pain management). However, barriers such as lack of recognition (patients often unaware of anesthesiologists' roles), financial disparity (compared to surgical branches), and stressful, erratic hours (emergency duties) deter medical students from pursuing it.

To address these challenges, early clinical exposure—such as introducing anesthesia rotations in the 2nd or 3rd year—could demystify the field. Awareness campaigns debunking myths (e.g., "no autonomy" or "boring work") and clarifying salary benchmarks (private vs. government sectors) may improve perceptions. Additionally, mentorship programs connecting students with practicing anesthesiologists and promoting sub-specializations (pain management, critical care, research) could enhance career appeal.

Reforms may also include curriculum reforms, such as mandatory early anesthesia rotations and financial literacy modules comparing specialties. Perception management could be improved through initiatives like "Anesthesiologist Visibility Week," featuring patient testimonials, live OT demonstrations (with consent), and alumni career disclosures.

CONCLUSION

Overall, the findings suggest that enhancing early and consistent exposure to anaesthesiology, promoting mentorship, addressing misconceptions, and highlighting the specialty's critical and diverse role in modern medicine could positively influence medical students' attitudes. Given the global shortage of trained anaesthesiologists, particularly in low- and middle-income countries, such interventions are essential to build a robust and enthusiastic future workforce. Hence, by addressing misconceptions and enhancing exposure, anesthesiology can be positioned as a dynamic and rewarding career path.

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