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ORIGINAL RESEARCH

Perception about anaesthesia and anaesthesiologists among non-medical graduate professionals

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Background: Despite enormous health awareness programmes being organised in different parts of the world, the pace of such programmes does not seem to match the pace of the advances in the field. Therefore, we decided to assess the adequacy of awareness and deficiencies in knowledge that are still prevalent in the population in order to focus on the areas and methods of education required.

Methods: A cross-sectional observational study among non-medical graduate professionals residing in Bangalore was conducted using a predesigned questionnaire consisting of 23 questions divided into three sections to cover the demographic details, and the assessment of knowledge about the anaesthesia, its techniques and the anaesthesiologist.

Results: A total of 91.4% of respondents was aware of the specialty; 54.3% had a source of information through self-acquired knowledge. Only 2.9% were aware of regional anaesthesia, and therefore, the majority preferred general anaesthesia. In total, 51.4% expressed a fear of not waking up due to an anaesthetic overdose. The majority (31.4%) perceived the surgeon as the doctor responsible for providing postoperative pain relief and performing cardiopulmonary resuscitation.

Conclusion: Lack of knowledge still exists among the general public about anaesthesiology as a speciality and the role of anaesthesiologists. There is a need for regular, ongoing educational programmes to keep up with developments in the field to avoid resurgence of misconceptions. In the present digital era, electronic media needs to be utilised effectively in eliminating the misconceptions that are still prevalent in developing countries.

Keywords: health knowledge, attitude, anaesthesiology, anaesthesia, awareness, public

Introduction

Anaesthesiology is one of the youngest branches of medical science that has grown tremendously over the last few decades after its first successful public demonstration in 1846 by William T.G. Morton. The specialty of anaesthesia has revolutionised itself during the last 50 years due to the development of new anaesthetic agents, techniques and monitoring systems. This specialty now caters to a wide spectrum of patient care ranging from preoperative services to critical care, accident and emergency services, palliative care, obstetric analgesia, as part of the resuscitation and disaster management team. Thus, the role of the anaesthesiologist has expanded beyond the traditional operating room (OR) setting to multipronged services in out-of-OR settings as well.[1]

The literature review has revealed many previous studies that assess awareness regarding the specialty and the perception of anaesthesiologists among the general public,[2-5] conducted either among hospitalised patients[6-10] or in the rural population,[11] and have revealed that patients are not fully cognisant of the role of the anaesthesiologist both inside and outside the OR. Against this background, there have been numerous educational programmes in the health sector during the last decade, especially in developed countries, in order to spread awareness on the specialty.[9,12] Also, in developing countries like India, there has been an awareness since the Consumer Protection Act (CPA, 1986) came into enactment and 16 October is celebrated worldwide as Anaesthesia Day every year.[7] Despite all efforts, the knowledge of the structure of the medical services and practices relating to the specialty of anaesthesiology and anaesthesiologists[13] does not seem to be satisfactory as witnessed by the increasing number of medicolegal allegations against anaesthesiologists. This can be attributed to either misconceptions by the general public or insufficient and incoherent information delivered by the media emphasising complications and legal repercussions associated with the practice of anaesthesia. This creates confusion and anxiety when individuals are faced with the possibility of surgical intervention. Keeping this in mind, the present study was conducted to assess the perception of anaesthesiology and the role of anaesthesiologists by non-medical graduate professionals. In this study, we also intended to educate participants about the specialty to alleviate their fear and anxiety. Even though it was feasible to conduct this study among hospitalised patients, a few aspects made us decide against it. These aspects include the limited time we get to interact during preoperative visits to educate them, the psychological build-up at that point, the anxiety that patients and their loved ones face during the hospital stay and the state of 'acute mental confusion' experienced by the patients as they are seen by a number of doctors. Therefore, we decided to conduct this study in workplaces instead. The results are further analysed with respect to age, gender and educational status to identify patient-related factors that can influence the level of knowledge. The results obtained from this

study will be used to identify deficiencies in knowledge and to develop newer information dissemination strategies to improve our understanding of patient mindset, which in turn will lead to better patient care.

Methodology

After obtaining institutional ethics committee approval, this cross-sectional observational study was conducted on participants aged 18–60 years of either gender, non-medical professionals residing in Bangalore with an educational status of graduation and above. It was conducted among software engineers, MBA graduates, faculties of engineering colleges, and other graduates working in government offices and multinational corporations. It was done with the approval of the respective companies and in a pre-determined time slot in the conference room of their offices. Questionnaires were distributed to the participants who were informed that their participation in the study is entirely voluntary and that their responses will be treated confidentially. After confirming their willingness to participate in the study, they were informed about the pattern of questions and the method of answering. Depending on the language of their choice, the participants were provided with a predesigned questionnaire either in the local language (Kannada) or in English. The questionnaire was designed by modifying an existing scale based on the research question in our mind. The questionnaire had three sections. The first section dealt with demographic information. The second section related to the assessment of knowledge about anaesthesia and its techniques. The third section was designed to assess knowledge regarding the anaesthesiologist. The questionnaire consisted of 23 questions with a dichotomous scale, multiple-option type and open-ended questions (see Annexure 1). Those who refused to participate and those who terminated the questionnaire were excluded. Distribution of the questionnaire, monitoring and collection of completed responses were carried out by allied healthcare students (who were blinded to the survey) under the supervision of the investigators.

The statistical analysis was carried out with the SPSS software version 20. The results were subjected to a descriptive analysis and expressed as percentages. The variables were coded and reformulated to find the association between the variables for age, gender and educational status using the chi-square test and Fisher's exact test considering a p-value < 0.05 as statistically significant.

Results

A total of 175 respondents with 115 (65.7%) men and 60 (34.3%) women took part in this study. Five participants were excluded as they were not willing to participate in the study. However, those who left some questions unanswered were also included in the analysis as missing values. The demographic distribution of the participants is depicted in Table I. In the study population, 110 (62.9%) participants were graduates and 65 (37.1%) were postgraduates.

As a source of information on anaesthesia, 54.3% had self-acquired knowledge, 20% were informed by relatives or friends, 14.3% gained knowledge from the media and 8.6% had no idea (Table II). A significant correlation was observed between the male gender and the source of information ($p = 0.001$) as well as between the educational status of graduation and the source of information ($p = 0.001$).

Although the majority of participants (82.9%) had no prior anaesthesia, 51.4% felt that anaesthesia was unsafe. The descriptive statistical analysis report used to evaluate their knowledge of anaesthesiology, awareness of the types of anaesthesia, as well as choice of anaesthesia is presented in Table II.

With regard to the awareness of consent and the prerequisites for anaesthesia, the descriptive statistical analysis reports are shown in Table III. A significant association between the male gender and awareness of consent was observed ($p = 0.014$), while there was no association with educational status ($p = 0.062$).

Regarding knowledge of pain relief services, the descriptive statistical analysis reports are presented in Table IV. This aspect had a significant association with graduates ($p = 0.001$), but no association with gender ($p = 0.926$) was observed.

When asked about the common cause of complications during and after the surgery, the majority (34.3%) indicated it is due to overdose of anaesthesia, 25.7% indicated poor general condition of the patient prior to surgery, 22.9% indicated type of surgery and 17.1% indicated excessive blood loss during surgery (as seen in Table V). Concerns about anaesthesia had a significant association with graduates ($p = 0.001$) and no association with gender ($p = 0.390$) was observed.

Regarding their knowledge about the anaesthesiologist as a doctor and the role of an anaesthesiologist both inside and outside the OR, the results of the descriptive statistical analysis are presented in Table VI. Regarding the importance of meeting the anaesthesiologist before surgery, the majority (71.4%) thought it was important, 20% had no idea about it and 2.9% said it was not important. The knowledge about anaesthesiologists as doctors and the various roles they play showed a significant association with graduates ($p = 0.001$) and with male gender ($p = 0.002$).

Table I: Demographics

	Frequency (*n*)	Percentage (%)
Age		
20–30	90	51.4
30–40	42	24
40–50	23	16
50–60	20	11.4
Gender		
Female	60	34.3
Male	115	65.7
Educational status		
Graduate	110	62.9
Postgraduate	65	37.1

Table II: Knowledge about the specialty of anaesthesiology

	Frequency (*n*)	Percentage (%)
Have you undergone any previous surgeries		
No	145	82.9
Yes	30	17.1
Is anaesthesia safe		
No	90	51.4
Yes	85	48.6
Opinion about anaesthesia		
Making area numb	90	51.4
Making unconscious	70	40.0
No idea	10	5.7
Source of information about anaesthesia		
Self-acquired knowledge	95	54.3
Relative/friend	35	20.0
Media	25	14.3
No idea	15	8.6
Types of anaesthesia		
No	100	57.1
Yes	60	34.3
If given a choice, which type of anaesthesia would you prefer		
General	80	45.7
Local	45	25.7
Regional	10	5.7

Table III: Awareness about consent and prerequisites for anaesthesia

	Frequency (*n*)	Percentage (%)
Are you aware that consent has to be given separately for both anaesthesia and surgery?		
No	50	28.6
Yes	125	71.4
Is it necessary to be fasting for at least 6 hours prior to anaesthesia?		
No	35	20.0
No idea	100	57.1
Yes	40	22.9

Table IV: Awareness about pain relief services

	Frequency (*n*)	Percentage (%)
Are you aware of the concept of "pain-free" delivery?		
No	85	48.5
Yes	90	51.4
Awareness about specialised pain relief services for patients suffering from multiple injuries following road traffic accidents		
No	100	57.2
Yes	75	42.9
Is there any role of an anaesthesiologist in relieving long standing pain related to cancer, backaches, sciatica, etc.?		
No	125	71.4
Yes	40	22.9

Table V: Concerns about anaesthesia

	Frequency (*n*)	Percentage (%)
The common cause for complications during and after operation		
Overdose of anaesthesia	60	34.3
Poor general condition of patient prior to surgery	45	25.7
Type of surgery	40	22.9
Excessive blood loss during surgery	30	17.1
Fears related to surgery and anaesthesia (multiple option type)		
Fear of not awakening due to overdose of anaesthesia	90	51.4
Fear of being awake during surgery	70	40
Fear of not being able to move after surgery	45	25.7
Fear of pain during surgery	45	25.7
Fear of death due to blood loss	40	22.8
Fear of failure of surgery	25	14.2

Table VI: Knowledge about the anaesthesiologist and the role of the anaesthesiologist

	Frequency (*n*)	Percentage (%)
Who is an anaesthesiologist?		
Doctor	90	51.4
Trained anaesthesia technician	65	37.1
No idea	10	5.7
Nurse	5	2.9
Role of anaesthesiologists in operation theatre (OT)		
To anaesthetise and monitor the patient	140	80.0
Administers anaesthetic drugs and leaves the OT	10	5.7
No idea	15	8.6
Who do you think is most responsible for taking care of the patient's pain relief after surgery?		
Surgeon	55	31.4
Anaesthesiologist	50	28.6
No idea	20	11.4
Nurse	40	22.9
Cardiopulmonary resuscitation and connecting to a ventilator will be performed by		
Surgeon	60	34.3
Anaesthesiologist	45	25.7
Trained anaesthesia technician	30	17.1
Nurse	20	11.4
Who plays a major role in making a normal delivery a pain free process?		
Gynaecologist	70	40.0
Anaesthesiologist	55	31.4
No idea	40	22.9

Discussion

Developments in the field of anaesthesiology have been substantial, with current practice being based primarily on newer anaesthetic agents, drugs, techniques and drug delivery systems. Not only has this benefitted patients by offering pain relief in a multitude of settings, but it has also contributed to advances in surgical management with a higher success rate of complex surgeries and an increased number of ambulatory surgeries being performed. Despite this rapid development with enhanced benefits, it is still considered a "behind the scene" specialty. This can be mainly attributed to the insufficient knowledge of the public about the specialty, either due to a lack of communication by specialists in the field or the dissemination of misinformation by inauthentic sources. This study, therefore, was formulated to assess perceptions about anaesthesiology and the role of anaesthesiologists among non-medical graduate

professionals who contribute to a large proportion of the urban population. At the same time, we also decided to educate the participants and clarify their doubts about the specialty.

Although the majority of participants (82.9%) had no prior anaesthetic experience, our study showed that 91.4% knew about the specialty of anaesthesia. This was much higher compared to the previous studies done in the Indian population,[1,5] which can be attributed to the higher educational status of the participants in our study. The results may differ in rural populations or populations with lower educational strata. Regarding their knowledge about the specialty, 51.4% said it is making an area numb, 40% opined it as making a patient unconscious and 5.7% said they have no idea. In contrast to the study by Prasad and Suresh, in which 74% of participants thought anaesthesia to be safe, our study revealed that 51.6% thought it was unsafe which reflected people's fear and apprehension about the specialty.[5] As for their source of information on anaesthesia, 54.3% of participants described it as self-acquired knowledge, 20% were informed by their relatives or friends, 14.3% gained information from the media and 8.6% had no idea. This was in contrast to our assumption that the major source of information is the media. In today's era of regional anaesthesia with sophisticated equipment to improve patient safety, the results of our study revealed that 57.1% of the participants were unfamiliar with the types of anaesthesia, while 34.3% said they knew that it was local or general anaesthesia. The percentage of people who knew about regional anaesthesia was relatively small compared to other types, and the vast majority of them used the term local anaesthesia to represent this. The majority (45.7%) of the participants preferred general anaesthesia, in contrast to the study by Prasad and Suresh, which may be attributed to their lack of knowledge about regional anaesthesia.[5]

The anaesthesia informed consent form is a very crucial document. However, in our study, 71.4% of the participants knew that a separate anaesthesia consent form is required along with surgical consent, while 22.9% did not know this. The results of our study was similar to the survey conducted by Prasad and Suresh.[5] Regarding the need to fast before anaesthesia, the majority of participants (57.1%) had no idea about it, 22.9% opined that fasting is necessary and 20% opined it is not necessary. When asked about an increased risk of anaesthesia with smoking or alcoholism, 48.6% of participants had no idea about it, 37.1% opined that it does increase risk and 14.3% said it does not increase the risk. This underlines the fact that more time must be allowed in the pre-anaesthesia clinic (PAC) to provide relevant information about the various anaesthesia techniques, to disclose the associated benefits and risks, and to explain the content of the informed consent in detail before the document is signed in order to ensure its relevance is appreciated. It also highlights the importance of explaining the pre-anaesthetic instructions during the PAC.[6]

In our survey, we found that 51.4% of the participants are aware of the concept of pain-free delivery and 48.5% do not know, while 57.2% of the participants do not know and 42.9% are aware of pain relief services for patients with multiple injuries related to trauma. When respondents were asked if the anaesthesiologist played a role in relieving long-lasting pain related to cancer, back pain, sciatica, etc., 71.4% said it did not matter and 22.9% said that the anaesthesiologist plays a role. This clearly demonstrated that there is a relative lack of knowledge about the existence of acute and chronic pain relief services, and also about the vital role anaesthesiologists play in providing such services as evidenced by this and other studies.[4,8,10] It also highlights the fact that the data has not improved over time. Somewhat better knowledge of painless delivery could be attributed to the role of successful government programmes on maternal and child health in providing information on labour and labour analgesia. Hence, it would be advisable to have similar government programmes in relation to cancer pain relief services and the benefit from the Pain Clinic for acute and chronic pain relief services to in-patients.

When asked about the common causes of complications during and after the surgery, the majority of the participants (34.3%) stated that it was an overdose of anaesthesia, 25.7% stated a poor general condition of the patient prior to surgery, 22.9% mentioned the type of surgery, and 17.1% said excessive blood loss during surgery. When asked about their fears about anaesthesia, the main concern was not waking up due to an anaesthesia overdose. Being awake during surgery was the second main concern, while postoperative pain and the fear of not being able to move after the surgery were the third and fourth fears, respectively. This was followed by fear of blood loss during surgery and surgery failure. The results of our study differed from previous studies which highlighted postoperative pain as a main concern while awareness during surgery remained in second place similar to previous studies.[1,4]

This study was formulated based on the latest press reports and news channels, which attributed the cause of unfortunate complications after the surgery to an overdose of anaesthesia without clarifying this with the doctors concerned. Concerned that such information could create unnecessary fear, apprehension and misunderstanding about the fraternity in the general public, and also indirectly contribute to the increase in medical litigations in this area, we decided to evaluate and educate the public. Although only 14.3% of the participants used the media as a source of information, our study reflected the effects of the terminology used such as an anaesthetic overdose very well. Other information sources mentioned by the participants (i.e. self-acquired knowledge) could have been directly or indirectly influenced by electronic and print media; also, the knowledge gained through friends could also have propagated this misinformation.

Assessing the knowledge regarding the anaesthesiologist, 51.4% of participants recognised the anaesthesiologist as a doctor, 37.1% as trained anaesthesia technician, 5.7% had no idea and 2.9% as nurses. This data was consistent with previous studies.[1,5] In our study, a reasonable percentage of participants (80%) appreciated the role of the anaesthesiologist in the OR as administering anaesthesia to patients and monitoring them in

contrast to the findings of the surveys conducted earlier where this role was not clear to many participants.[1]

Another important finding noted in our study was that participants perceived the surgeon as the professional who is responsible for performing tasks pertaining to anaesthesiology such as taking care of patient's pain relief after surgery, and performing cardiopulmonary resuscitation. Also, participants perceive the gynaecologist as the professional who plays a major role in making normal delivery a pain free process. Our study results were consistent with other previous studies and there has been no improvement in results over the years.[1,13] The spectrum of activities of anaesthesiologists in patient care has expanded over the years due to the highly skilled services they provide. They were recognised by TIME magazine in 2020 featuring anaesthesiologists on their cover page as heroes of the frontline identifying their contribution during the COVID-19 pandemic. Such educational and informative guides, which cause a knowledge explosion, are the need of the hour in developing countries.

We also used this opportunity to sensitise and educate the participants by explaining to them that the safety standards in anaesthesia are akin to the aviation industry, wherein prior to every take-off (induction of anaesthesia), a thorough check of monitors, workstations, equipment and medication is carried out and the availability of emergency resuscitation equipment is ensured. Anaesthesia is carefully administered by qualified anaesthesiologists using recommended medications with minimum basic standard monitoring to ensure patient safety and a safe landing (recovery from anaesthesia).

The anaesthesiologist is a specialist in this field and is capable to handle unforeseen contingencies if these arise as each patient will react differently to the anaesthetic process. According to the American Society of Anesthesiologists (ASA), the risk of anaesthesia-related complications and death ranges from 0–0.3% in ASA level I to 9.4–57.8% in ASA level V patients. That is far lower than suicide rates or deaths from road traffic accidents in India. In addition to the knowledge assessment, the participants in our study also received information about the specialty in order to allay anxiety and raise awareness.

Study limitations

Owing to the time constraints, we were unable to evaluate the responses to the same questionnaire after completing the education programme to study the impact of the programme on improving knowledge levels. Also, a large sample in the study could have improved the validity of the results.

Conclusion

Urbanisation has not only created a tech-dominated population, it has also increased the demand for healthcare facilities in urban areas. At the same time, as reflected by the results of our study, there is still a lack of knowledge about anaesthesiology and the anaesthesiologist in developing countries. This mismatch between increased demand for healthcare services and a lack of knowledge could indirectly contribute to the increase in medical litigation. Therefore, we propose the use of electronic and printed media as a platform to raise awareness, alleviate fears, educate the public about the fastest developing and poorly understood specialty of anaesthesiology, with the support of anaesthesiologists, in order to break the chain of misinformation and eliminate the deep-rooted misunderstandings. We also emphasise the importance of regular and ongoing educational programmes in line with advances in the field. This will play an important role in future advances in awareness-raising and may also enhance the use of the wide range of anaesthesiology services in the general population.

Conflict of interest

The author declares no conflict of interest.

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Ethical approval

Ethics approval was obtained from the Sapthagiri Institute of Medical Sciences (SIMS&RC/IECC/09/2018) dated 3/10/2018 and CTRI approval (reference no CTRI/2021/04/032921) was obtained.

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Annexure available online