

## Original Research Article

# Assessment of surgical patients' knowledge about anaesthesia and anaesthesiologist in a tertiary care teaching institute-a survey

Vinay Marulasiddappa, Nethra H. N.\*

Department of Anaesthesia, BMCRI, Bengaluru, Karnataka, India

**Received:** 08 January 2018

**Accepted:** 11 January 2018

**\*Correspondence:**

Dr. Nethra H. N.,

E-mail: [drvinaym@gmail.com](mailto:drvinaym@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** Anaesthesia is a speciality, playing a crucial role in the perioperative care of patients. Complex surgeries are facilitated due to the anaesthesiologists catering to the ever-advancing surgical field requirements. Although an important speciality, patients are unaware of the speciality of anaesthesia and anaesthesiologist. Patients are subjecting themselves for surgical procedures without having adequate knowledge of anaesthesia and anaesthesiologist. Hence, the survey was designed with the aim to assess the patients' knowledge about anaesthesia and anaesthesiologist in surgical patients.

**Methods:** A cross sectional study conducted on four hundred surgical inpatients using predesigned questionnaire containing questions related to the knowledge of anaesthesia and anaesthesiologist. The results were expressed as percentages. Chi-square/ Fisher Exact test was used to find the significance of study parameters.

**Results:** Anaesthesiologists were considered as "doctors" by 60.5% of patients; Thirty three percent of the survey population had "no idea" of Anaesthesia. The survey populations' knowledge about complications was 32.25%. Awareness about separate consent for anaesthesia was 49%. Anaesthesiologists' work place was not known to 77.5% of survey population. Anaesthesiologists' role in operation theatre was known only in 59.5% and remaining 40.5% were unaware of Anaesthesiologists' role. None of the patients preferred to meet the Anaesthesiologists before surgery.

**Conclusions:** Surgical inpatients in tertiary care hospital have a poor understanding of anaesthesia and poor recognition of the role of anaesthesiologist. The knowledge about anaesthesia and anaesthesiologist is not known in general population. Hence, anaesthesiologists must work towards getting recognition for the speciality of anaesthesiology and the anaesthesiologists.

**Keywords:** Anaesthesiology, Anaesthesiologist, Consent

### INTRODUCTION

Anaesthesia is relatively a new speciality when compared to surgery and medicine. Anaesthesia has rapidly evolved and has become the supporting specialty for the advancement of surgical specialities, critical care and pain medicine. Anaesthesiology is considered as "behind the scene" speciality and "low profile" speciality by the medical fraternity as well as the general public.<sup>1-4</sup>

Lack of recognition and decreased appreciation of the speciality leads to disinterest and frustration in the work place.<sup>2,4,5</sup>

Anaesthesiologists are considered as perioperative physicians, leaders in resuscitation and relievers of pain.<sup>5</sup> Lack of awareness about Anaesthesiologists and Anaesthesiology may lead to anxiety and fear in patients subjecting themselves to surgery.

In the present era of advanced healthcare facilities, with access to media and technology, patients are expected to be well informed about healthcare and anaesthesia. On the contrary, patients are subjecting themselves for complex surgical procedures without adequate knowledge about pre-anaesthesia checkup, anaesthesia consent, procedure and risks related to anaesthesia.

Studies conducted on general population, tribal population and medical students to assess the knowledge about anaesthesia and anaesthesiology, showed that large percentage of people were unaware of the role of anaesthesiologists in surgical procedures, critical care and labor analgesia.<sup>2,3,5</sup> In the recent years, anaesthesia related complications have been highlighted in media with respect to patient morbidity and mortality. Being aware of the present situation of the speciality of anaesthesia, we intended to conduct a study on surgical in-patients in a tertiary care teaching institute, and assess their knowledge about anaesthesia and the role of anaesthesiologist.

## METHODS

The cross section survey was conducted in four allied hospitals of a Tertiary Care Teaching Institute from October 2015- March 2016.

The aim of our study was to assess the knowledge and awareness, about anaesthesia and anaesthesiologist in surgical population. Our primary objective was to assess the knowledge about anaesthesia and anaesthesiologist. Our secondary objectives were to assess the awareness about the role of anaesthesiologists in the perioperative management of patients and to assess the influence of previous exposure to surgery and anaesthesia on the knowledge about anaesthesia and anaesthesiologist.

Sample size of 400 was determined based on study outcome and conservative estimate of 50% and 95% confidence Interval with 10% level of margin of error. Study tool used was a Closed End Questionnaire, with 21 questions organised under three sections- Section 1 had demographic details of surgical patients and speciality of surgery; Section 2 had questions related to Anaesthesiology; Section 3 contained questions about anaesthesiologists and their role in perioperative care (Annexure 1). Questionnaire was designed based on validated questionnaires of previous studies with questions to address the objectives of the study.<sup>1,2,4</sup> Random patient allocation was done by computer generated random numbers.

Adult patients admitted for elective surgery in the age group of 18-65 years of ASA physical class 1 and 2, were included in the survey. Patients not willing to take part in the study; Age<18 years and >65 years; ASA physical class 3 and patients posted for emergency surgery were excluded from the survey. Survey was conducted in preoperative period in the pre anaesthesia clinic.

All participants were explained about the questionnaire. After confirming their willingness to take part in the survey, patients were explained about the pattern of questions. Questionnaire was available in two languages- Kannada and English. Patients could opt for language of their preference. Literates were defined as "any person who is able to read and write". Illiterates and patients with vernacular other than Kannada and English had an interpreter to help in analysing questions. Interpreter was a preoperative nurse who was not involved in the study. Literate patients were given questionnaires and asked to tick the answers after going through the questionnaire. Anaesthesia post graduate students were present to clarify any queries related to the understanding of the questions. Questionnaires were collected and analysed after the completion of the study period by the investigator.

Chi-square/Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups. The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1, Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

## RESULTS

The results of all hospitals were pooled, and data was expressed as percentages. One third of the survey population were females. Majority of the patients (67.5%) were in the age group of 18-45 years. About half of our survey population (52.5%) were homemakers. Residents of Bangalore city constituted to 62.5% of survey patients. Illiterates were only 16.25% of survey population. The details of demographic parameters are summarized in Table 1.

**Table 1: Demographic parameter.**

Parameters	Sub-parameter	%
Age	18-45 years	67.5
	45-70 years	32.5
Gender	Females	64.5
	Males	35.5
Residence	Bangalore	62.5
	Non-bangalore	37.5
Education	Illiterate	16.25
	High school	51.5
	Intermediate	19
	Graduate	13.25
Occupation	Homemaker	52.5
	Farmer	5.75
	Coolie	11
	Business	6.75
	Sales	6
	Driver	5.25
	Teacher	2.5
	Engineer	1
	Doctor	0
	Student	9.25

To the questions on assessment of knowledge about anaesthesiology, two third of the population answered that they had some idea of anaesthesiology and one third of patients were totally unaware of anaesthesiology.

Patients who had “no idea’ of anaesthesiology were not excluded but were allowed to answer other questions in the survey. The answers of the assessment of knowledge about anaesthesiology are depicted in the Table 2.

**Table 2: Knowledge about anaesthesiology.**

Idea of anaesthesiology %		Knowledge about anaesthesia complications %	
No idea	33	Yes	32.25
Making area numb	30.75	GA	
Putting to sleep	13.75	-not waking	5.5
Making unconscious	22.5	-overdose	11
Source of information about anaesthesia		Death	1.75
No idea	27.5	Ventilator support	1.7
Self-exposure	20.7	Regional	
Friend	10.25	Nerve injury	3.5
Relative	8.75	Backache	10.5
Media	5.5	Weakness	0.75
Nurse	2.5	No idea	67.75
Surgeon	18.25	Awareness about consent for anaesthesia	
Multiple source	6.5	Yes	49
Fears about operative procedure		No	33.5
Do not know	28.75	Only for surgery	17.5
Feeling pain	46	Knowledge of different types of anaesthesia	
Fear of surgery	13.25	No idea	75.75
Being anaesthetized	8	Yes	24.25
Being unconscious	1	-GA	6.25
Being awake	2.75	-SA/EA	6
Fears about anaesthesia		-LA	3.25
Do not know	35	-GA+RA+LA <sup>++</sup>	8.75
Feeling pain	33.75	Knowledge of different techniques in regional anaesthesia	
Being unconscious	19.5	No idea	83
Not waking	9	Yes	17
Immobility	2.75	-spinal/epidural	8.75
		-local blocks	4.75
		-SA <sup>^</sup> +EA <sup>^^</sup> + LA+ blocks	3.5
<sup>++</sup> GA-general anaesthesia, la-local anaesthesia, RA-regional anaesthesia <sup>^</sup> -spinal anaesthesia, <sup>^^</sup> EA-epidural anaesthesia			

Importance of signing the consent for surgical procedure was understood by 66.5% of study population. About half of the survey population were not aware of giving a separate consent for anaesthesia procedures. Prior exposure and treating surgeons were the main sources of information about anaesthesia

Fear of pain from the operative procedure was the foremost concern in 46% of patients. Only 8% of patients expressed fear of getting anaesthetized. To the question of “fears related to anaesthesia”-patients expressed ‘fear of pain’ and ‘immobility’ as the important concerns. Fears related to anaesthesia are depicted in Figure 1.

Patients were unfamiliar with techniques in anaesthesia. Majority of the patients (75.7%) had no idea about the

methods of anaesthetising. Terminologies like “general anaesthesia, regional anaesthesia and local anaesthesia were understood only by 24.2% of patients. “Injection” was the assumed method of administering anaesthesia according to 50.2% of the patients.

It was disappointing to note that the awareness about anaesthesia complications were very poor. A large percentage of patients (67.75%) were unaware of the possibility of complications. A few complications as listed by patients are depicted in figure 2

Although Pain was the prime concern, patients were ignorant about doctors responsible for pain relief. Patients were not clear about the role of anaesthesiologists in perioperative care. The answers to the questions

addressed to assess knowledge of the anaesthesiologists are presented in Table 3.

**Table 3: Knowledge about anaesthesiologist.**

Qualification of anaesthesiologist		Responsibility of pain relief during/after surgery	
No idea	29%	No idea	29.75%
Technician	2%	Surgeon	27.25%
Assistant	0.5%	Anaesthesiologist	15.5%
Doctor	60.5%	Nurse	8.25%
Specialist	8%	All	19.25%
Role of anaesthesiologists in operation theatre		Preference to meet OT# doctor	
No idea	40.5%	Yes (any doctor)	57.75%
Administers drugs only	35%	Only surgeon	18%
Anaesthetizes & monitors	24.5%	Anesthetist	0%
Presence of anaesthesiologists in OT		Both	
No idea	43.25%	No	13%
Yes	31.25%	No idea	4.75%
May be present	25.5%	Willingness to meet anaesthesiologist	
Methods of administering anaesthesia		Yes	
No idea	29.25%	No	17.5%
Injection (non specific site)	50.25%	No idea	31.5%
Injection site	13.5%	Source of referral to anaesthesiologists	
Gases	5.25%	No idea	0.75%
Injection + gases	1.75%	Self	5.5%
Number of anaesthesiologists in OT		Surgeon	
No idea	68.75%	Nurse	31.25%
One	18.5%	Work place of anaesthesiologists	
Two	6.5%	No idea	77.5%
Three	6.25%	Only OT	17.5%
		ICU/PACU	5%
#-OT operation theatre			

According to 60.55% of patients, ‘anaesthesiologists’ were doctors. Few considered anaesthesiologists as ‘technician’ and ‘assistants to surgeons’. Role of the anaesthesiologists in perioperative care was poorly understood by patients. Work place of anaesthesiologist was not known to 77.5% of the population. Patients did not know about the Presence of anaesthesiologist in operation theatre (43.2%). Surgeons and ward nurses were considered as pain relievers (27%). Operating surgeons were preferred than the anaesthesiologist. It was disappointing to note that no patient preferred to meet anaesthesiologist in particular

In our study, 45% of patients had previous exposure (PE) and 55% of the patients had no exposure (NE) to surgery and anaesthesia in the past. Among patients with previous exposure to surgery, 89.5% of patients could recollect the type of anaesthesia they were exposed and 9.35 % could not recollect the type of anaesthesia administered to them.

Patients with previous exposure to anaesthesia had a better understanding about anaesthesiology, consent, and

anaesthesia procedure and anaesthesia complications. The answers of pre-exposure group and post exposure group has been summarised in the Table 4.

**DISCUSSION**

Anaesthesiology is a speciality playing a significant role in surgical patient care. Anaesthesiology has surpassed the limits of operation room and spread the services to critical care, palliative care, labour analgesia and pain clinics. Although an important speciality, anaesthesiology has lacked the recognition deserved by the speciality anaesthesia and anaesthesiologist are not appreciated by medical fraternity as shown by various studies.<sup>1,3,5,4,6,7</sup> Anaesthesiologist of the present day are expected to possess the multitasking abilities, updated knowledge about rapidly evolving techniques in anaesthesia, surgery, resuscitation, pain management and monitoring equipments.<sup>7</sup> Despite rendering lifesaving, pain relieving services to the patients, anaesthetists lack the due respect.

Our study was conducted in the tertiary care teaching government institution located in a metro city. In our

study as majority of patients were residents of Bangalore city, the awareness about anaesthesiology was expected to be better than people in tribal or rural areas. The knowledge about of anaesthesiology is lower in

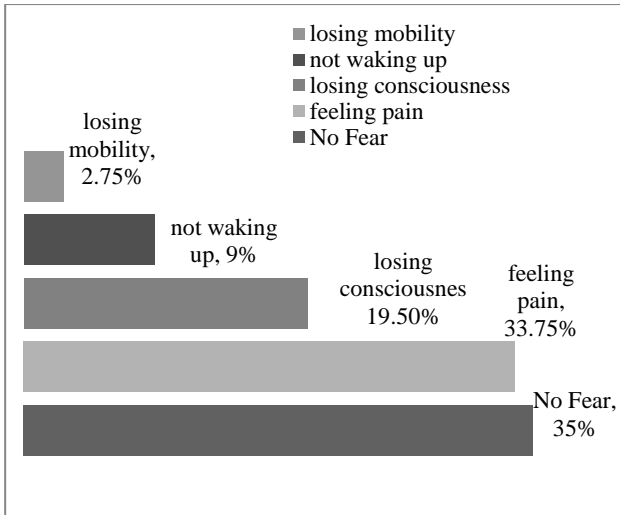
tribal/rural area in India due to lower literacy.<sup>1</sup> On the contrary, knowledge of anaesthesiology and anaesthesiologist was poor as found in studies conducted in urban tertiary care hospitals in India.<sup>2,5</sup>

**Table 4: Comparison of answers between Previous Exposure and Non- exposure groups.**

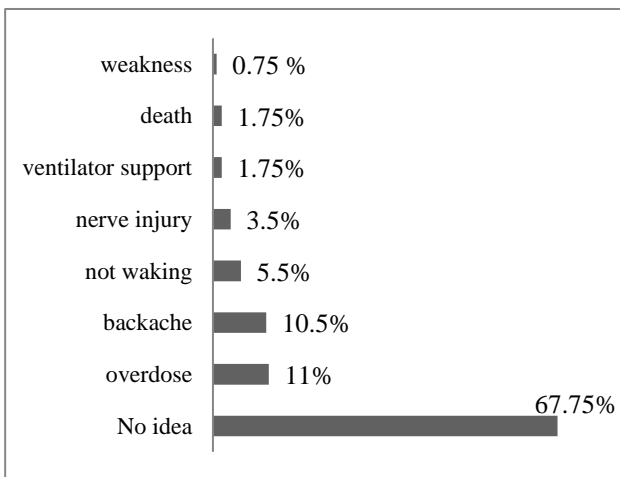
Question	Previous exposure N (%)	Non exposure N (%)	p value
<b>Idea of anaesthesiology</b>			<0.001**
No idea	37 (20.35)	95 (43.13)	
Making area numb	80 (44.00)	46 (20.88)	
Putting to sleep	21 (11.55)	35 (15.89)	
Making unconscious	42 (24)	44 (20)	
<b>Knowledge of different types of anaesthesia</b>			<0.001**
No idea	114 (62.7)	198 (89.89)	
Yes	66 (36.3)	22 (9.98)	
<b>Methods of administering anaesthesia</b>			<0.001**
No idea	31 (17.05)	106 (48.12)	
Injection (non specific site)	113 (62.15)	70 (31.78)	
Injection at site	9 (4.95)	26 (11.80)	
Gases	4 (2.2)	10 (4.54)	
Injection +gases	23 (12.65)	8 (3.6)	
<b>Knowledge about anaesthesia complications</b>			<0.001**
Yes	62 (34.1)	45 (20.43)	
No idea	118	175 (79.45)	
<b>Awareness about consent for anaesthesia</b>			<0.001**
Yes	118 (64.9)	88 (39.95)	
No	35 (19.25)	94 (42.30)	
Only for surgery	27 (14.85)	38 (17.25)	
<b>Fears about operative procedure</b>			0.011*
Do not know	49 (26.95)	65 (29.51)	
Feeling pain	76 (41.80)	111 (50.39)	
Fear of surgery	23 (12.65)	30 (13.62)	
Being anaesthetized	24 (13.20)	9 (4.08)	
Being unconscious	2 (1.1)	0 (0)	
Being awake	6 (3.3)	5 (2.27)	
<b>Fears about anaesthesia</b>			0.574
Do not know	60 (33.)	85 (38.59)	
Feeling pain	57 (31.35)	72 (32.68)	
Being unconscious	39 (21.45)	40 (18.16)	
Not waking	16 (8.8)	18 (8.17)	
Immobility	8 (4.4)	5 (2.27)	
+ suggestive significance (p value: 0.05<p<0.10)* moderately significant (p value:0.01<p ≤ 0.05)** strongly significant (p value : p≤0.01)			

Higher literacy in patients is found to influence the knowledge about anaesthesiologist.<sup>2,3</sup> Although, large number of patients answered that anaesthesiologists were doctors (60.5%), very few patients were aware that anaesthesiologists were specialists. Although, literacy was 83.4% in our patients, we did not study the correlation with literacy with knowledge of anaesthesiology.

Surgeons and nurse play an important role as they are the primary consultant and care takers of the in-patients. In our study surgeons and nurses were the persons who referred the patients to pre anaesthesia clinics. Prior exposure was also an important way of acquiring knowledge about anaesthesia. Hence, patients undergoing surgery for first time should be made aware about anaesthesia.<sup>3</sup>



**Figure 1: Fears related to anaesthesia.**



**Figure 2: Knowledge about anaesthesia complications.**

Media can be an effective medium in creating awareness about anaesthesiology with its widespread network and accessibility to the public. However, in our study, information from mass media was only 5.1%. This could be due to lack of information and material on to the mass media. Spreading knowledge by use of mass media may improve the awareness about anaesthesiology.<sup>8,9,10</sup>

Studies have shown that pain is the most feared aspect of surgical procedure than getting anaesthetized.<sup>4,7,11</sup> Also, people are more concerned of surgical procedure than anaesthesia procedure. Lack of awareness about anaesthesia procedure and ignorance about anaesthesia could have been the explanation for lack of fear about anaesthesia.

General lack of interest in knowing anaesthesiology and anaesthesiologist leads to poor knowledge about consent, techniques and complications. One third of survey population were unaware about the need to give consent either for surgery or anaesthesia thereby showing ignorance towards understanding the procedure every

patient has to undergo. The reasons that could be assumed are-minimal interaction by anaesthesiologists with the patient and relatives; change in shift of anaesthetists and administration of sedatives might influence the patients' understanding of anaesthesia practice as well as lack of appreciation of anaesthesiologists role.

In our study, we noted that patients who had past history of exposure to anaesthesia and surgery, had better understanding about anaesthesiology and anaesthesiologist (Table 4). Significant difference ( $p < 0.001$ ) was seen in the answers pertaining to idea of anaesthesiology, methods of administering anaesthesia and complications of anaesthesia. Patients who had prior-exposure to anaesthesia recognised anaesthesiologist as doctors and specialists ( $p < 0.001$ ) as compared to non-exposed group. Patients with previous exposure were also aware of number of anaesthesiologists, role of anaesthesiologists in operation and pain relief. Patients with prior exposure expressed their willingness to meet the anaesthesiologist prior to surgery. Experience of surgery will influence the knowledge about anaesthesia. Hence, every opportunity of interaction with an anaesthesiologist should be stressed on imparting awareness about anaesthesia and techniques.

The drawbacks in our study are as follows: Questionnaires were given to patients visiting pre anaesthesia clinics. Answers could have been influenced by answers of other patients and relatives.

In our survey, as the method followed was a written questionnaire, people who had no idea of anaesthesia or anaesthetists were not eliminated from the study but instead asked to answer further questions, therefore any given choice could have been marked by patients. We did not correlate answers based on literacy, gender, region, occupation, religion and surgical speciality of admission. We have not conducted a pre-assessment and post assessment survey of knowledge of anaesthesiology and anaesthetists following PAC/surgical procedure. Our study was focused on assessing the overall knowledge about anaesthesiology and anaesthesiologists in tertiary care teaching government hospital and the influence of previous exposure. The results and discussion are based on findings of survey in our institution. The results may vary in private or corporate hospitals.

The explanation for poor knowledge about anaesthesia and anaesthetists may be due to following

- Change in operation theatre shifts with change in anaesthesiologist,<sup>2,5</sup>
- Non availability of anaesthetist in outpatient department to answer queries by patients or patients attendees,
- Lack of introduction by anaesthesiologists to the patients during pre operative or post operative visits.<sup>5</sup>

- Interaction by the consultant anaesthetists only on the day of surgery and short interaction,<sup>4,8,9</sup>
- Non availability of information related to anaesthesia in Out-patient slips/ in patient books and discharge cards.

Anaesthesiologist should work towards getting recognition for the speciality in public. Based on our study results, we recommend few steps that may be initiated at institution level as enumerated-setting up anaesthesia clinics will highlight the need for pre anaesthesia evaluation and get recognition as physician anaesthesiologist rather than doctor in operation theatre. Spending time with the patient in the pre operative period, visiting patient in post operative period might leave a lasting impression in the minds of the people and get recognition as perioperative physicians and pain relievers Pre anaesthesia evaluation should be utilised to provide information about anaesthesia.<sup>2,5</sup> Patients and patient's attendees are more attentive at the time of pre anaesthesia checks. Discussion on consent, techniques, allaying fears and explanation of the complications can improve the knowledge.<sup>3</sup>

Inclusion of anaesthesiologists' name in discharge summary, along with details of anaesthesia will help in spreading awareness about anaesthesia. Displaying posters about anaesthesia in patients waiting area and providing information brochures in in-patient/outpatient books might educate the patients as well as the visitors and family members of patients. Addressing public on mass media might help in clearing the misconceptions about anaesthesia and reach out to a large audience. Nationwide campaign should be launched by society of anaesthesiologists in improving and spreading awareness about anaesthesia.<sup>5</sup>

## CONCLUSION

The knowledge about anaesthesia and anaesthesiologist among patients in our tertiary care Institute is poor. The picture may not be different in teaching institutions in other parts of our country. The awareness about anaesthesiology and anaesthesiologist may be different in patients of corporate hospitals. However, this study reflects the mindset about the people and the significance received by speciality of anaesthesia. The most important concern is getting acceptance and preference by our patients as the perioperative physician. Recognition of anaesthesiologists by patients might have a positive effect on anaesthesiologists' work and workplace. Anaesthesiologists should work for the recognition of our speciality and spread awareness about anaesthesiology. Improving knowledge is the need of the hour in order to have positive outcomes in anaesthesia and surgery, as well as improve doctor-patient relationship.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Gurav SY, Manjrekar SP. Awareness about anaesthesia among the patients coming from tribal area in vidarbha region of Maharashtra State. Ind J App Res. 2014;4(12):409-11.
2. Khara BN, Rupera KB, Gondalia KR, Kamat HV. Knowledge about anaesthesia and perception about anaesthesiologists among patients at a rural tertiary care hospital: a cross sectional survey. National J Med Res. 2013;3(4):371-3
3. Leite F, D'Silva LM, Biancolin SE, Dias A, Castiglia YM. Patient perceptions about anaesthesia and anaesthesiologists before and after surgical procedures. Sao Paulo Med J. 2011;129(4):224-9.
4. Singh PM, Kumar A, Trikha A. Rural perspective about anesthesia and anesthesiologist: A cross-sectional study. J Anaesthesiol Clin Pharmacol. 2013;29:228-34.
5. Uma BRL, Hanji A. "Anaesthesia and anaesthesiologists: how famous are we among the general population?"-a survey. J Clin Diag Res. 2013;7(12):2898-900.
6. Mathur SK, Dube SK, Jain S. Knowledge about anaesthesia and anaesthesiologist amongst general population in India. Ind J Anaesth. 2009;53(2):179-86.
7. Imran M, Khan F. Change in patient's perception and knowledge regarding anaesthetic practice after a preoperative anaesthesia clinic visit. Internet J Anesthesiol. 2012;30(3).
8. Udita N, Dharam P, Pramila B. Public awareness about anaesthesia and anaesthesiologist: a survey. Ind J Anaesth. 2007;51(5):420-6.
9. Deepa J, VS Shinde, RD Patel, LD Naik. A study of patients' perception about knowledge of anaesthesia and anaesthesiologist. Ind J Anaesth. 2002;46(1):26-30.
10. Eyalade OR, Akinyemi JO, Adewole IF. Patients' perception and knowledge of anaesthesia and anaesthetists-a questionnaire survey. Southern Afr J Anaesthesia Analgesia. 2010;16(4):28-31.
11. Bhattarai B, Kandel S, Adhikari N. Perception about the role of anesthesia and anesthesiologist among the paramedical staffs: perspective from a medical college in Nepal. Kathmandu Univ Med J. 2012;38(2):51-4.

**Cite this article as:** Marulasiddappa V, Nethra HN. Assessment of surgical patients' knowledge about anaesthesia and anaesthesiologist in a tertiary care teaching institute-a survey. Int J Res Med Sci 2018;6:486-92.