

## Research Article

# Awareness about anaesthesia in India: a survey in southern India

Rajesh Veeramachaneni\*, Pradeep S. Indurkar

Department of Anaesthesia, Mamata Medical College, Khammam, Telangana, India

**Received:** 12 December 2015

**Revised:** 14 December 2015

**Accepted:** 06 January 2016

**\*Correspondence:**

Dr. Rajesh Veeramachaneni,

E-mail: [rajesh02veera@gmail.com](mailto:rajesh02veera@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 has achieved great heights and made advances. Patients are more concerned about operative aspect of his/ her treatment. A section of society still thinks anaesthesia to be a part of surgery. Anaesthesiologists have developed great skills but do not take effort to convey skills to lay persons.

**Methods:** This study was conducted in Telangana (southern India). 500 persons were given a questionnaire in local language. Study was done on two group of people on urban and rural population.

**Results:** In both groups 60- 65% are afraid of postoperative pain. Awareness about nausea and vomiting is 15%-25% in both groups. 90% of population is not worried about regaining consciousness after surgery.

Anaesthesiologist- Urban (90%) and rural (76%) population thinks anaesthesia is given by anaesthesiologist but 35% of urban and 60% of rural thinks anaesthesiologist is less important than surgeon.

Consent- 91% of urban and 78% of rural knows regarding high risk consent. Only 56% of urban and 22% of rural knows that the risk is explained by anaesthesiologist and the rest think that it is explained by surgeon, nurse or assistant. NBM-It is disappointing to know that only 20% urban 45%rural is aware of 8 hours NBM before surgery.

**Conclusions:** According to this study 1/3rd of urban population has limited knowledge about importance of anaesthesia as part of their treatment. Risk is explained by person other than anaesthesiologist. Knowledge about fasting before surgery is extremely low in urban population. Hence anaesthesiologist must make efforts to improvise in above mentioned fields.

**Keywords:** Urban, Rural, Awareness, Anaesthesia, Consent, Fasting

### INTRODUCTION

From Morton to Macintosh to 21<sup>st</sup> century, anaesthesia has achieved great heights and advances are made on all fields of this subject.

The patient and lay people are still more concerned about the operative (surgery) aspect of his or her treatment. A section of society still thinks anaesthesia to be a part of surgery.

Anaesthesiologists have developed great skills in maintaining safety of patients who are subjected to anaesthesia but we do not take effort to convey our skills to the lay persons. Rural as well as Urban population of India seems to be more concerned about surgical part of treatment, be it small.<sup>1</sup> Anaesthesia is considered as secondary to surgery by a large number of people in India. The amount of effort (especially Mental) put up by anaesthesiologist is only known to him/her, irrespective of type of anaesthesia or its duration. Even the colleagues from other medical and surgical faculties are unaware about this.

In consideration we decided to do a study (survey) regarding awareness about anaesthesia in urban and rural population in Khammam, Andhra Pradesh, India. Any person working in medical field was not included in this study.

## METHODS

This cross sectional study (SURVEY) was conducted in Telangana (southern part of India) from August to November at Mamata Medical College, Khammam. 500 persons were given a questionnaire in local language. Study was done on two groups of people (250 each) on urban and rural population at Khammam, out of which 223 from urban and 178 from rural responded. Persons belonging to all education status were included in the study.

### Inclusion criteria

1. Urban and rural population
2. 18 years to 50 years

### Exclusion criteria

1. Person employed in hospital
2. Psychiatric patients

### Questionnaire (annexure 1)

Questionnaire was taken from previous two surveys done in India.<sup>3,8</sup> Our questionnaire consists of 24 questions, out of which few questions were divided into sub questions. This questionnaire was divided into six domains for ease of assessment of results.

### Domains

- I. Fears before and after surgery
- II. Awareness about anaesthesiologist
- III. Awareness about anaesthesia and monitoring
- IV. Awareness about consent
- V. Awareness about NBM nausea/vomiting
- VI. Anaesthesiologist role outside OT

### Analysis of data

The data was analysed on SPSS23 and chi square test. Using chi square value P value was derived using GRAPH PAD.

### Abbreviation

1. NBM - Nil by mouth
2. N/V - Nausea and vomiting
3. S - Significant
4. NS - Not significant
5. OT - Operation theatre

## RESULTS

### Gender

75% and 25% of male and female respectively in urban group responded. In rural group 57% male and 43% female responded to the questionnaire Table 1.

**Table 1: Gender.**

	Urban	Rural
% Male	75	57
% Female	25	43

### Education

Education status is higher in urban group. The survey reveals that education status in rural is also good Table 2.

**Table 2: Education.**

	0-4	4-inter	Above inter
Urban	4%	41%	55%
Rural	22%	45%	33%

### Concerns about surgery

In both groups 60- 65% were afraid of intra operative and postoperative pain. Fear of awareness during anaesthesia and fear of death during surgery is low Table 3.

**Table 3: Concerns about surgery.**

	Urban	Rural	P value
Pain during surgery	59%	51%	P:0.124 NS
Pain after surgery	63%	60%	P:0.57 NS
Fear of awareness during surgery	31%	23%	P:0.07 NS
Fear of death during surgery	7%	24%	P:0.001 S

### Awareness about anaesthesia (percentage of individuals who answered correctly)

Urban (95%) and rural (76%) population thinks anaesthesia is given by anaesthesiologist.

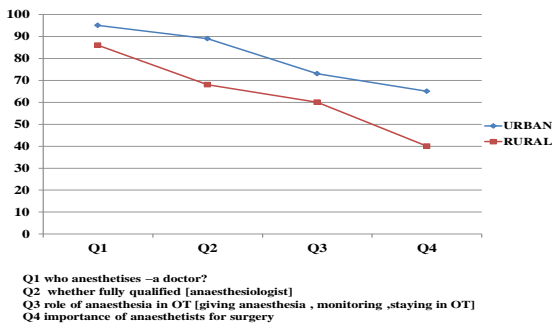
65% of urban and 40% of rural thinks anaesthesiologist is more important than surgeon.

72% urban and 46% rural population are of the opinion that anaesthesiologist monitors patients during surgery. 92 and 84 percent of urban and rural population respectively knows that anaesthesia is a skill full job.

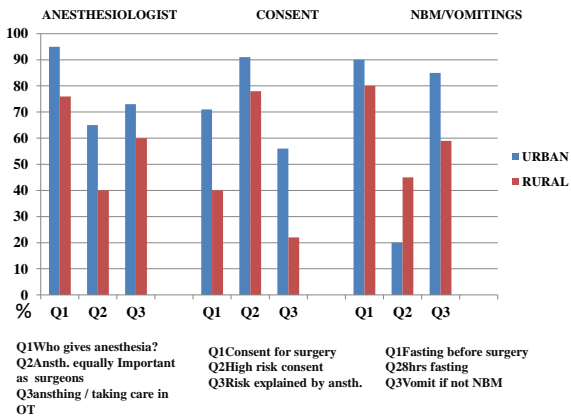
70% of urban population know that anaesthesiologist also work outside the operation theatre. This knowledge in urban population is less (43%). Table 4, Figure 1 & 2.

**Table 4: Awareness about anaesthesia (% of individuals who answered correctly).**

	Urban	Rural	P value
Anaesthesiologist gives anaesthesia	95%	76%	P:0.001 S
Importance of anaesthesiologist for surgery	65%	40%	P:0.001 S
Anesth. monitors patients during surgery	72%	46%	P:0.001 S
Giving anaesthesia a skill full job	92%	84%	P:0.017 S
Anaesthesiologist work outside OT	70%	43%	P:0.001 S



**Figure 1: Awareness about anaesthesiologist urban/rural.**



**Figure 2: Bar diagram showing awareness about anaesthesia urban/rural.**

**Percentage of individuals who has knowledge about consent**

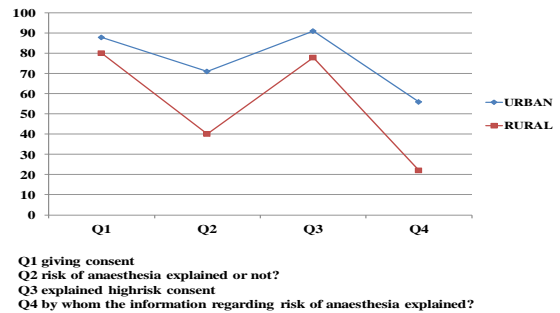
Our study reveals that awareness about consent was quiet high.

71% of urban and 40% of rural knows regarding risk of anaesthesia.

91% of urban and 78% of rural knows about high risk consent. 56% of urban and 22% of rural knows that the risk is explained by anaesthesiologist and the rest think that it is explained by surgeon, nurse or operation theatre assistant or else they don't know. Table 5, Figure 3.

**Table 5: Percentage of individuals who has Knowledge about consent.**

	Urban	Rural	P value
Awareness about consent	88%	80%	P:0.037 S
Risk of anaesthesia explained or not?	71%	40%	P:0.001S
Awareness about high risk	91%	78%	P:0.005S
Risk explained by anaesthesiologist	56%	22%	P:0.001S



**Figure 3: Awareness about CONSENT.**

**Percentage of individuals having Knowledge about NBM. Nausea / vomiting**

Knowledge about fasting before surgery and nausea/vomiting is intriguing. 80-90% of both urban and rural population know that patients must be kept fasting before surgery but only 20%of urban and 45%of rural people know that 8 hrs fasting is needed before anaesthesia.

**Table 6: Percentage of individuals having Knowledge about NBM. Nausea /vomiting.**

	Urban	Rural	P value
Knowledge about NBM for surgery	90%	80%	P:0.008 S
Knowledge about 8hr NBM before surgery	20%	45%	P:0.001 S
Knowledge of vomiting if patients are not NBM	85%	59%	P:0.001 S
Knowledge of withholding food/ water after surgery	94%	81%	P:0.002 S

85% and 59% of urban and rural people respectively know that vomiting can occur if patients are not NBM. Knowledge about postoperative fasting is high Table 6.

#### Source of information and willingness to know

Willingness to know about anaesthesia was 93% in Urban and 81% in rural population Table 7.

**Table 7: Source of information and willingness to know.**

	Urban	Rural
Any past experience	27%	29%
Friends and relatives	46%	54%
Mass media	26%	16%
Will to know about anaesthesia if given a chance	93%	81%

## DISCUSSION

It has been observed that anaesthetist does not spend adequate time with patients they are dealing with. Whereas surgeons are more close to the patients as they meet the patients daily and frequently. This factor affects the relationship between patients and anaesthesiologists. Another fact is that patients who have undergone previous operations have learned little about the anaesthesiologists and their work compared to those who have not<sup>1</sup>. This indicates a lack of proper communication between anaesthesiologists and their patients. Hence there is a widespread misconception amongst the public about the role of anaesthesiologists and their responsibilities inside or outside the operating room.

This study was done to evaluate the knowledge of lay people regarding anaesthesia and anaesthesiologist. The survey was done both in urban and rural population hence it is important to note that 57% male and 43% female of rural population responded. This is in contrast to the opinion by Singh p.m. et al.<sup>3</sup> Response from the rural population was encouraging. This might be attributed to the elevated educational status of rural population in recent years (45% studied between 4<sup>th</sup> – 10<sup>th</sup> standard and 33% of the rural populations education status was above intermediate) (Table 2).

It was observed that mostly male population responded in urban group (75%). In rural group the response of male and female was almost equal (Table 1 Gender). This might be due to rural females undergoing delivery and caesarean sections. Hence the knowledge about surgery and anaesthesia has increased in rural female population by their interaction with doctors and medical staff. This might be attributed to the role of successful government programs on maternal and child health, which does provide labor-related information.<sup>4,5</sup>

## Education

Maximum number of answers to questionnaire in urban group was from people who are educated above 12<sup>th</sup> standard (intermediate). In rural group the response was from people educated up to 12<sup>th</sup> standard. (Table 2 Education) This is again in contrast to the study done by Singh p.m. et al in 2013 in which they quoted that 87% of patients listed were either completely uneducated or had not completed education till 10<sup>th</sup> standard.. Education status of urban as well as rural population has gone up. A study conducted in United Kingdom shows that about 80% of involved population was able to correctly answer the role of anaesthesiologist.<sup>6,8</sup> Proper or correct response of a person is directly related to his/her education status.

## Fears before and after surgery

In our study, in both the groups 50 - 60% were afraid of intraoperative and postoperative pain. This is significant in terms of giving postoperative analgesia by anaesthesiologist. Awareness under anaesthesia doesn't seem significant in Indian population as our study reveals that only 31% urban and 23% rural populations have fear of awareness under anaesthesia. This might be due to predominance of spinal anaesthesia practice in India. 70%-80% of lay person do not have knowledge about awareness under anaesthesia hence they avoided to answer or answered negative. Fear of death is more in rural population (24%) but significantly less in urban population (7%) (Table 3 Concerns about surgery).

In Western studies the major preoperative concern was awareness during anaesthesia and failure to gain consciousness followed by intra and postoperative pain. In Asian studies the major preoperative concern was pain (intra and postoperative) followed by failure to wake up after surgery and aware of being operated.<sup>1,8,12</sup> Our study also shows much concern regarding intra operative and post operative pain. Fear of pain is a natural human tendency and also one of the important reasons for rise in pulse and blood pressure just before surgery. Anaesthesiologists should take efforts to convince the patients to allay this anxiety.

## Importance of anaesthesiologist

95% Urban and 76% rural population know that anaesthesia is given by anaesthesiologist (Table 4). Almost similar percentage was noted in the study done by Naithani et al and Prasad CS.<sup>8,11</sup> In the study conducted by Swinhoe et al in UK 80% of the patients knew that an anaesthesiologist would give them anaesthesia.<sup>6</sup> Rural people should be made aware about the role of anaesthesiologist in operation theatre. Education seems to be an important factor. 65% urban and 40% rural populations think that anaesthesiologist is equally important as surgeon. It was captivating to know that 17% of urban and 28% rural population think that anaesthesiologist is more important than surgeon.

60-75% of both populations felt that anaesthesiologist stayed during surgery to look after breathing, BP, IV fluids. Surveys conducted in developed countries shows a majority of patients felt that anaesthesiologist stayed during operation to look after their breathing, blood pressure & intravenous fluids.<sup>10</sup> Our survey is at par with this.

According to our study 70% urban and 43% rural feel that anaesthesiologist work outside OT.

80%-90% of both the population think that giving anaesthesia is a skilful job. In the study done by Mittal et al in 2005, they quoted that 70% of the population feels that anaesthetist work outside operation theatre.

### **Consent**

88% of urban and 80% of rural knows that consent is to be given for anaesthesia. Awareness about high risk consent is 91% in urban and 78% in rural group. This result is encouraging as previous studies reported significantly lower figures (Singh et al and Brezis et al, Naithani et al).<sup>3,7,8</sup> Only 56% of urban and 22% of rural knows that the risk regarding anaesthesia is explained by anaesthesiologist and the rest think that it is explained by surgeon, nurse or operation theatre assistant or else they don't know (Table 5). It is highly advisable that knowledge about consent for surgery/anaesthesia and explaining risk of anaesthesia should be done in pre-anaesthesia check up by anaesthesiologist. A very relevant statement from the conclusion made by Naithani et al is 'Anaesthesiologist should take consent from the patient after verbally explaining all the advantage & disadvantages of the procedure. The task of taking consent should not be left to the surgeon alone. A familiar friendly face in an unfamiliar environment (operating room) goes a long way to allay anxiety'. Our study coincides with the study of Prasad CS et al which shows that 77% were aware about the requirement of informed consent for all procedures.<sup>11</sup>

### **NBM and vomiting**

In our study high percentage of people knew that patients need to be kept fasting before surgery, but it was incredible to know that 80 % of urban population think only 2hrs preoperative fasting is needed for anaesthesia. We went back to the survey questionnaire sheets to confirm this and found that it was true. According to the survey only 20% of urban and 45% of rural population knows that 6 to 8 hrs fasting time is required to give anaesthesia (Table 6). But significant numbers of people are aware that patient can vomit if not kept NBM. This appears quite intriguing. We did not find any Indian studies done in last 10 years which has data regarding preoperative fasting. Singh et al in his study quotes 5.16% patients when explained risks of GA were scared of possibility of PONV over other concerns. In the study done by Gurunathan et al 73% understood that fasting is

necessary before surgery. The author is of opinion that patients need proper education by the anaesthesiologist during the preoperative visit. Their patients were more anxious about the practical problems of pain, nausea and vomiting. Naithani et al also observed the same findings.

As per the observation in our study it is highly recommended to educate the patients and stress the 6 hr. NBM period prior to any surgery. This has to be done in pre anaesthetic checkups and also in anaesthesia OPD wherever available. In addition the paramedics should be made aware to tell the patients and keep a check on them in wards to avoid untoward incidents intra and post operatively.

Willingness to know about anaesthesia- in urban 93% and 81% in rural are willing to know about anaesthesia (Table 7).

Salient features of this study-

1. This Survey was conducted on Urban as well as Rural population outside the hospital. Most of the previous studies were done either in rural area or in patients undergoing surgery.
2. Patients and persons working in hospitals were excluded from the study to reduce the biased opinion.
3. Pre operative and postoperative fasting issues have been highlighted and good results obtained. Most of the previous studies did not comment on fasting issues.
4. This survey reveals the education status of rural population has gone up and parallel awareness about anaesthesia has also gone up (when compared with previous surveys).

### **CONCLUSIONS**

The study reveals that education status of rural population has gone up. People are more concerned about pain during surgery and pain in post operative period .Their concern is low regarding awareness under anaesthesia and death during surgery. Major percentage of population knows that anaesthesiologist give anaesthesia. A sizable number in both groups thinks anaesthesiologist is more important than surgeon.

People have knowledge about giving normal as well as high risk consent but regarding explaining the risk of anaesthesia the result is disappointing as many has answered negative when asked if the risk is explained by anaesthesiologist It's alarming to note that knowledge about fasting before surgery is extremely low in urban population.

We are of the opinion that anaesthesiologists must take more efforts in educating the patients regarding fasting before surgery and explaining risk regarding anaesthesia. This should be taken up mainly during pre anaesthetic

check-up. This can also be done in anaesthesia OPD<sup>s</sup>. Other medical and paramedical staff should be made aware about these issues as patients are in their contact for maximum period before surgery.

These efforts might increase the awareness about anaesthesiologist, consent, risks for anaesthesia and fasting before surgery.

Hence anaesthesiologist must make efforts to improvise in above mentioned fields.

*Funding: No funding sources*

*Conflict of interest: None declared*

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

## REFERENCES

1. Gurunathan U, Rebecca Jacob. The public's perception of anaesthesiologists - Indian attitudes. *Indian J Anaesth.* 2004;48:456-60.
2. Herman CR. An appraisal of anaesthetist – patient relationship. *Anaesthesia.* 1978;33:45-8.
3. Singh PM, Kumar A, Trikha A. Rural perspective about anesthesia and anesthesiologist: A cross-sectional study. *J Anaesthesiol Clin Pharmacol.* 2013;29:228-34.
4. Biswas AB, Das DK, Roy RN, Saha I, Shrivastava P, Mitra K. Awareness and perception of mothers about functioning and different services of ICDS in two districts of West Bengal. *Indian J Public Health.* 2010;54:33-5.
5. Bhandari N, Kabir AK, Salam MA. Mainstreaming nutrition into maternal and child health programmes: Scaling up of exclusive breastfeeding. *Matern Child Nutr.* 2008;4:5-23.
6. Swinhoe CF, Groves ER. Patients' knowledge of anaesthetic practice and the rôle of anaesthetists. *Anaesthesia.* 1994;49:165-6.
7. Brezis M, Israel S, Weinstein-Birenshtock A, Pogoda P, Sharon A, Tauber R. Quality of informed consent for invasive procedures. *Int J Qual Health Care.* 2008;20:352-7.
8. Naithani U, Purohit D, Bajaj P. Public awareness about anaesthesia and anaesthesiologist: A Survey. *Indian J Anaesth.* 2007;51:420.
9. Mittal MK, Sethi AK, Tyagi A, Mohta M. Awareness about anaesthesiologist and the scope of anaesthesiology in non-surgical patients and their attendants. *Indian J Anaesth.* 2005;49(6):492-8.
10. Mathur SK, Dube SK, Jain S. Knowledge about anaesthesia and anaesthesiologist amongst general population in India. *Indian J Anaesth.* 2009;53:179-86.
11. Prasad CS, Suresh G. A survey on public awareness about the role of anesthesiologists. *Ain-Shams J Anaesthesiol.* 2014;7:456-9.
12. Chew ST, Tan T, Tan SS, Ip-Yam PC. A survey of patients' knowledge of anaesthesia and perioperative care. *Singapore Med J.* 1998;39:399-402.

**Cite this article as:** Veeramachaneni R, Indurkar PS. Awareness about anaesthesia in India: a survey in southern India. *Int J Res Med Sci* 2016;4:499-508.

Annexure-1  
Questionnaire

Domain I—Fears before and after surgery

1. Are you concerned or afraid about anything before surgery? Yes / No
- I). Fears during Surgery?
- Pain
- Fear being aware of getting operated
- Death during surgery
- Needle prick
- Others
- II. Fears after Surgery?
- Pain
- Nausea, Vomiting
- Won't regain consciousness
- Others

Domain II--- Regarding Anaesthesia and Anaesthesiologist

1. Do you think if any form of analgesia/ anaesthesia is given before doing surgery? Yes/ No
2. If yes, it was done under
1. LA (Local Anaesthesia)
2. GA (General Anaesthesia)
3. No Anaesthesia
4. Don't know
3. Who gives anaesthesia to the patient amongst the following (in your opinion):
1. Surgeon
2. Medical Student
3. Nurse
4. Anyone working in the OT
5. OT Technician
6. Some other special person who has been trained in this work
7. Don't know
4. Is the person who anaesthetizes, a doctor? Yes / No

If yes

- 1. A fully qualified doctor?
- 2. A less qualified doctor?
- 3. B.I.M.S./B.A.M.S./Homeopathic Doctor
- 4. Don't know

5. What do you think about the importance of the anaesthetist for surgery?

- 1. Not at all important
- 2. Slightly important
- 3. Equally important as the surgeon
- 4. More important than the surgeon.

6. What do you think is the role of an anaesthesiologist in operation theatre.

- 1. Only anaesthetizes but stays in the operation theatre.
- 2. Other than anaesthetizing the patient takes care of,   
respiration, heart blood pressure, pulse and other vital parameters.
- 3. Leaves the operation theatre after anaesthetizing the patients.
- 4. Don't know.

Domain 3 Anaesthesia and Monitoring

1. How are the patient anaesthetized?

- 1. By intravenous (IV) injection
- 2. By intramuscular (IM) injection
- 3. By injection in the back
- 4. By per oral tablets
- 5. By gas from mask
- 6. By Hypnosis
- 7. By acupuncture
- 8. Hitting the head with a hammer
- 9. Any other way

2. Who monitors [take care] the patient during operation?

- 1. Surgeon
- 2. A Medical Student
- 3. Nurse
- 4. Any person working in ot
- 5. Special person trained in this work

3. Do you feel giving anaesthesia is skill full job? Yes / No

Domain IV- Consent



1. Are you aware of the information given in the consent form which you or your relative has signed for approval of surgery? Yes / No

2. If yes, then is there any information given regarding risk of Anaesthesia? Yes / No

3. If yes, by whom the information or risk has been explained?

1. Surgeon

2. Anaesthesiologist

3. OT assistant

4 nursing staff

4. If the patient suffers from any other disease like Diabetes, Hypertension, Asthma, Epilepsy, Liver dysfunction, or is old, is smoker or an alcoholic then risks during anaesthesia increase?

Yes / No

If yes, has the high risk been separately explained? Yes / No

Domain V—NBM, Nausea / Vomiting

1. Do you know patients are kept fasting before surgery? Yes / No

2. If yes how long?

1. 1hr

2. 2hrs

3. 8hrs

3. Do you know patients will have vomiting if patients are not kept on nil by mouth? Yes / No

4. Can patients take water /food immediately after operation Yes/ No

Domain VI—Role of Anaesthesiologist outside O.T.

1. Do you think the anaesthetist does any other work apart from working in operation theatre? Yes/ No

2. Is there any role of an anaesthesiologist Yes/ No    
 A) In reviving a patient when his heart stops  
 B) Intensive care unit

3. Is there any role of an anaesthesiologist in performing painless labor? Yes / No

4. Is there any role of an anaesthesiologist in relieving long standing pains related to cancer,

back, sciatica.

Yes / No

What is your source of information? Or How do you know all what you have told?

1. Any past experience

2. Friends and relatives

3. Any other way (Books, Newspaper, TV, Radio etc.)

Would you like to know more about the work of anaesthetist if given chance?

Yes / No