Original Article

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Preoperative Anxiety in Patients Undergoing Laproscopic Cholecystectomy in a Rural Area in Haryana Region - An Observational Study

Sachin Chandola[1], **Neha Yadav**[2], **Swati Kanchan**[3], **Ankit Rohal**[4], **Kuldeep Singh**[5], **Nishu Kadyan**[6]

[1]Assistant Professor, SRMS Institute of Paramedical Sciences, Bareilly, UP, India, [2]Assistant Professor, Department of Anaesthesiology, MMIMSR, MMDU, Mullana, Ambala, Haryana, India, [3]Senior Resident, Department of Anaesthesiology, Atal Bihari Vajpayee Institute of Medical Sciences and Ram Manohar Lohia Hospital, New Delhi, India, [4]MSc OTT, MMIMSR, MMDU, Mullana, Ambala, Haryana, India, [5]Senior Resident, Department of Anaesthesiology, MMIMSR, MMDU, Mullana, Ambala, Haryana, India, [6]PG student, Department of Anaesthesiology, MMIMSR, MMDU, Mullana, Ambala, Haryana, India.

Abstract

Background: Preoperative anxiety is common in patients undergoing surgical procedures, as it causes emotional and psychiatric problems as well as physical problems for patients, surgeons and anesthesiologist. Therefore, detecting the patient's existing preoperative anxiety is vital so that appropriate measures can be taken accordingly. Our primary aim in this study is to observe the level of anxiety, on the day and the day prior to surgery, in the patients undergoing laparoscopic cholecystectomy. **Subjects and Methods:** An institutional based observational study was conducted on 30 patients scheduled for laparoscopic cholecystectomy under general anaesthesia. The data was collected using the Amsterdam Preoperative Anxiety and Information Scale on the day and a day before the surgery and the scoring was done according the Likert scale. Statistical analysis was done by using SPSS 21. Data were expressed using descriptive statistics for continuous variables and frequency. Chi-square test was used among categorical variables. **Results:** Demographic variables like age, gender, ASA grade and history of anesthesia/operation are correlated with the prevalence of preoperative anxiety on the day and the day before of the surgical procedure and were not found significant. Higher anxiety level was observed in patients who have not experienced any previous anesthesia or operation. Statistical significant difference was found in heart rate and mean blood pressure one day before and on the day of surgery. **Conclusion :** According to the results, the study illustrates that patients lacked significant preoperative anxiety levels.

Keywords: Preoperative, Anxiety, Laparoscopic Cholecystectomy.

Corresponding Author: Neha Yadav, Assistant Professor, Department of Anaesthesiology, MMIMSR, MMDU, Mullana, Ambala, Haryana, India.
E-mail: Nehayadav05@gmail.com

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Introduction

Anxiety is characterized as an overwhelming experience of fear, worry, stress and nervousness. It is very common to feel anxious before having a surgery, especially on the day or few days prior to the procedure which are often spent in the hospital. Signs and symptoms of anxiety include irritability, insecurity, headache, sweating, chills, respiratory-distress, tachycardia and hypertension.[1] It is an emotional reaction associated with several pathophysiological responses accompanied by activation of the autonomous nervous system. Multiple physiological and psychological complications frequently accompany preoperative anxiety. A large amount of anaesthetic drugs are required in anxious patient for induction and maintenance of the optimum level of anaesthesia. Anxious patients also suffer from increased postoperative pain scores, delayed recovery, increased morbidity and longer hospitalisation.[2]

Various factors that are responsible for an increased preoperative anxiety depend on age, gender, lower education level, understanding ability, economic loss, separation from their family, expenses of the medical treatment and fear of death.[3] Increased preoperative anxiety levels can alter neuroendocrine response which can be deleterious in post-operative phase. Due to these consequences, the patient can go through prolonged wound healing and impaired immune system.

In most of the cases, the anxiety is caused because of not providing appropriate information to the patient about the anaesthetic and surgical procedures during the pre-anaesthetic visit.It commences as soon as the surgical procedure is planned and rises to maximum severity at the time of admission to a health care setting.

In adult patients, the prevalence of preoperative anxiety level ranges from 11% to 80% and also varies among different surgical groups. Anxiety plays a major role in potentially affecting various important aspects of anesthesia such as preoperative visit, induction, and recovery period.[4–7]

The increased preoperative anxiety levels considerably affects the patient's perception of postoperative pain control.[8] Recovery from anesthesia can become eventful as anxiety alters the patient's opinion about postoperative pain.[9]

Most of the studies are done to find the association of anxiety with surgical procedures. In this study we assessed the prevalence of anxiety and the factors associated with it in relation to the anaesthesia to be administered in patients for elective laparoscopic cholecystectomy on the day and prior to the day of surgery in our hospital.

Subjects and Methods

After getting approval from the Institutional Ethical Committee and written informed consent from patients, the present study was conducted in MMIMSR, Department of Anaesthesia, Mullana, Haryana. It was a prospective, observational study which was conducted over a duration of one year (2018-2019). Patients of both genders between the age group of 20-50 years who were scheduled for elective laproscopic cholecystectomy under general anesthesia, were enrolled in the study.Preoperative patients who were not interested, with existing history of anxiety disorders or on any anti-psychotic drugs were excluded from the study.

Preoperative evaluation was done a day prior to the surgical procedure. Detailed history and vital parameters were recorded. Patients were explained and assured about the study for their approval. A total of 6 questions were asked from the standard Amsterdam Preoperative Anxiety and Inventory Scale and their scoring was done according to the Likert scale. All the patients were kept fasting overnight. Tablet alprazolam 0.25 mg and tab ranitidine 150 mg at bed time was administered to all the patients. On the day of surgery vital parameters were assessed in the preoperative room and again the questions were asked and their scores were recoded.

The study was conducted on 30 adult patients who were posted for laparoscopic cholecystectomy.

Amsterdam Preoperative Anxiety and Information Scale.[10]

Statistical analysis

This prospective observational study was carried out on 30 patients between the age group of 20-50 years at MMIMSR, Mullana to observe the anxiety level, on the day and the day prior to surgery, in the patients undergoing laproscopic cholecystectomy. Statistical analysis was done by using SPSS 21. Data were expressed using descriptive statistics such as median and interquartile range for continuous variables and frequency and percentage for categorical variables. Chi-square test was used among categorical variables.

Results

The demographic profiles were comparable among the three groups with respect to age, gender, ASA grade and history of previous anaesthesia or surgery and there was no significant difference noted [Table 1]. Anxiety scores were not influenced by age, sex, ASA grade and history of previous anaesthesia or operation. An evident from [Table 2 & Figure 1] the percentage (%) distribution of level of anxiety a day prior to surgery were 66.7% (Mild), 30% (Moderate) and 3.3% (Severe). The percentage (%) distribution of level of anxiety on the day of surgery were 83.3% (Mild), 16.7% (Moderate) and 0% (Severe). Scoring has been done on the basis of APASIS. Scores between 6-14 were defined to have mild anxiety, 15-22 had moderate anxiety and 23-30 had severe anxiety. Most of the patients in our study had mild anxiety which was slightly on higher side on the day of surgery. Only 3.3% of the patients had severe anxiety on the day before surgery. Anxiety scores were not significant with p value> 0.05. [Table 3]

All demographic variables were compared with the prevalence of anxiety and no significant difference was found one day prior and on the day of surgery. [Table 4 & 5]

APAIS score consists of 6 questions with 4 of them depicting anxiety score and 2 depicting need for information score. Most of the patients did not report anxiety to any of the questions and did not ask for more information. Anxiety to surgical procedures were more than the anaestheticprocedure. [Table 6 & Figure 2]

Anxiety was more one day prior than on the day of surgery. [Table 7 & Figure 3] There was a significant difference between systolic and diastolic blood pressure one day prior and on the day of surgery. Heart rate was also statistically significant one day prior and on the day of surgery [Table 8 & 9].

Discussion

Patients are usually unaccustomed to the environment of operating theatre which makes the whole perioperative period

1.	I am worried about the anesthetic.	YES/NO 1 2 3 4 5
2.	The anesthetic is on my mind continually.	YES/NO 1 2 3 4 5
3.	I would like to know as much as possible about the anesthetic.	YES/NO 1 2 3 4 5
4.	I am worried about the procedure.	YES/NO 1 2 3 4 5
5.	The procedure is on my mind continually.	YES/NO 1 2 3 4 5
6.	I would like to know as much as possible about the procedure.	YES/NO 1 2 3 4 5

Table 1: Frequency distribution of demographic variables

Variables	Options	Percentage	Frequency
AGE	21-30	16.7%	5
	31-40	23.3%	7
	41-50	60.0%	18
SEX	Male	50.0%	15
	Female	50.0%	15
ASA Grade	Grade 1	60.0%	18
	Grade 2	40.0%	12
History of Previous	Yes	16.7%	5
	No	83.3%	25

Table 2: Level of Anxiety Scores a day before and on the day of surgery

Criteria Measure Of Anxiety Score		
Score Level (n= 30)	**Day Before (F%)**	**ON The Day (F%)**
Mild.(6-14)	20(66.7%)	25(83.3%)
Moderate.(15-22)	9(30%)	5(16.7%)
Severe.(23-30)	1(3.3%)	0(0%)
Maximum Score=30 Minimum Score=6		

F%: frequency percentage

Table 3: Comparison of Anxiety Scores a day before and on the day of surgery

Paired t test	Mean±S.D.	Mean%	Range	Mean Diff.	Paired t test	p value	Table Value at 0.05
Day before surgery	11.5±5.52	38.30	6-24	-0.230	0.449 *	0.6571	2.05
On the day of surgery	11.27±3.86	37.60	6-18				
** Significance Level 0.05 Maximum=30 Minimum=6							

*Not significant

a potentially unpleasant experience for them. Anxiety during the preoperative period is the most frequently encountered problem with a rise in postoperative complications such as an increase sensation of postoperative pain, delay wound healing which results in prolonged hospital stay. The level of preoperative anxiety can be influenced by psychological

Table 4: Association of scores and demographic variables a day before surgery

Association of Day Before Test Anxiety Scores Of With Selected Socio-Demographic Variables.									
Variables	**Options**	**Severe**	**Moderate**	**MILD**	**Chi-test**	**p-value**	**df**	**Table Value**	**Result**
AGE	21-30	0	3	2	3.687	0.450	4	9.488	Not
	31-40	0	1	6					
	41-50	1	5	12					
SEX	Male	0	4	11	1.311	0.519	2	5.991	Not
	Female	1	5	9					
ASA	Grade 1	0	7	11	2.894	0.235	2	5.991	Not
	Grade 2	1	2	9					
History	Yes	0	1	4	0.560	0.756	2	5.991	Not
	No	1	8	16					
Previous Anesthesia/Operation									

Table 5: Association of scores and demographic variables on the day of surgery

Association Of On The Day Anxiety Scores With Selected Socio-Demographic Variables.									
Variables	**Options**	**Severe**	**Moderate**	**Mild**	**Chi Test**	**p-value**	**df**	**Table Value**	**Result**
AGE	21-30		1	4	0.069	0.966	2	5.991	Not
	31-40		1	6					
	41-50		3	15					
SEX	Male		2	13	0.240	0.624	1	3.841	Not
	Female		3	12					
ASA	Grade 1		4	14	1.000	0.317	1	3.841	Not
	Grade 2		1	11					
History	Yes		0	5	1.200	0.273	1	3.841	Not
	No		5	20					
Previous Anesthesia/Operation									

Table 6: Frequency percentage of subject according to each question on day before surgery

Day before Surgery	**Section-2 Anxiety**					
Subjects	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**
No (%)	70%	70%	77%	27%	30%	67%
Level 1 (%)	13%	13%	0%	30%	27%	3%
Level 2 (%)	13%	13%	3%	40%	37%	3%
Level 3 (%)	3%	3%	0%	0%	3%	0%
Level 4 (%)	0%	0%	20%	3%	3%	27%

intervention and therefore, extra attention and information regarding the procedure from the anaesthesiologists will help in reducing patient's anxiety.

In our study, patients in both the groups were comparable regarding age, gender, ASA grade and history of previous anesthesia / operation. Mean age of patients was 40.39 ± 8.54 years which was similar to the study conducted by Celik F et al in which the mean age of patients was 42.79 ± 4.75 years.[11] Results of our study were similar to the study conducted by Yilmaz M et al (2012),[12] which reveals that there was no significant correlation between age and the level of anxiety.

Erkilic E et al performed a study to find out the correlation between the preoperative anxiety and age of the patients.[13] It was found that patients who were younger than 30 years

Table 7: Frequency percentage of subjects according to each question on the day of surgery

On the Day of Surgery	Section-2 Anxiety					
Subjects	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**
No (%)	57%	57%	100%	23%	23%	97%
Level 1 (%)	17%	17%	0%	3%	13%	0%
Level 2 (%)	23%	23%	0%	33%	27%	3%
Level 3 (%)	3%	3%	0%	37%	33%	0%
Level 4 (%)	0%	0%	0%	3%	3%	0%

Table 8: Paired t-test of systolic and diastolic blood pressure on both days

Paired t- test	BP(S)		BP(D)	
	Day before surgery	**On the day of surgery**	**Day before surgery**	**On the day of surgery**
Mean	122.53	131.93	79.20	83.40
S.D	15.48	12.239	9.62	10.569
Median	124	132	78	82
Maximum	160	158	110	113
Minimum	100	110	68	65
Range	60	48	42	48
Number	30	30	30	30
Mean Difference	9.400		4.200	
Paired t-test	3.32 *		2.501 *	
p-value	0.0024		0.0183	
Table Value at 0.05	2.05		2.05	

BP(S) = Systolic blood pressure, BP (D) = Diastolic blood pressure* Significant

Table 9: Paired t-test of Heart Rate on both days

Paired t-test	Heart Rate	
	Day before surgery	**On the day of surgery**
Mean	81.00	89.20
S.D	11.31	13.399
Median	80	89.5
Maximum	118	132
Minimum	58	70
Range	60	62
Number	30	30
Mean Difference	8.200	
Paired t-test	3.574 *	
p-value	0.0013	
Table Value at 0.05	2.05	

*Significant;S.D = Standard Deviation

have significant levels of anxiety in comparison to the patients who were older than 45 years. Another study conducted by Maheshwari D et al also states that patients less than age of 25 years were more prone to have higher anxiety levels which is in contrast to our study.[14]

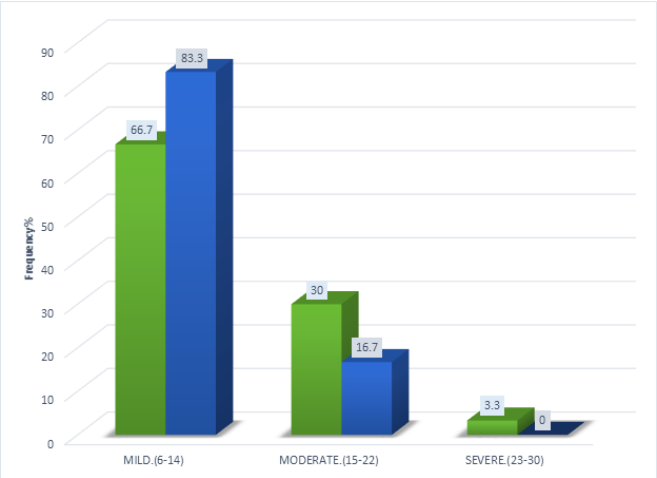

Figure 1: Anxiety Scores a day before and on the day of surgery

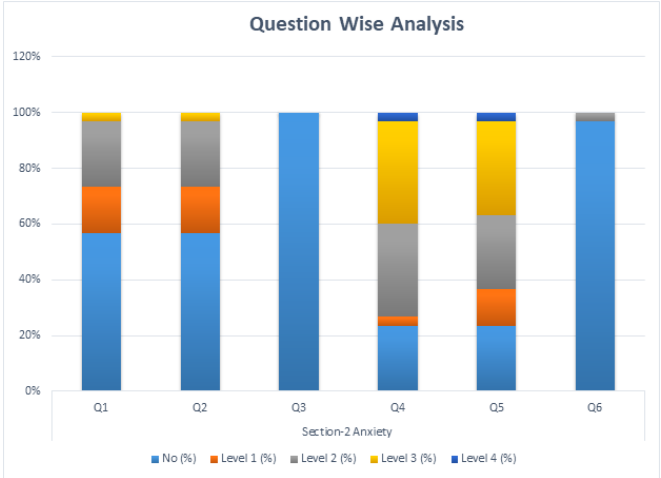

Figure 3: Showing question wiseanalysis (On the day of surgery)

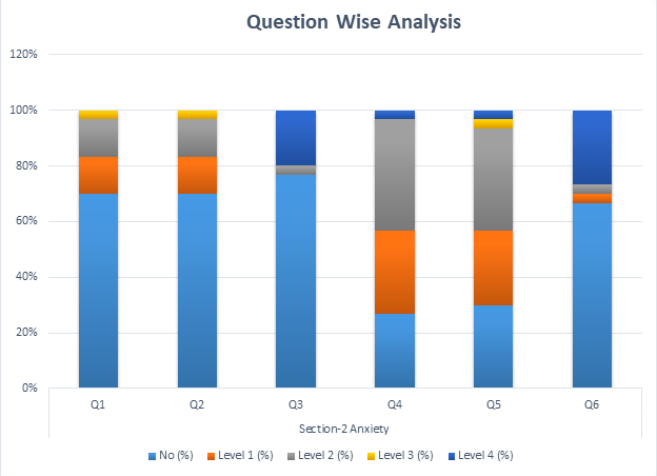

Figure 2: Showing question wise an alysis (Day before surgery)

A study conducted by Masood Z et al reveals that prevalence of preoperative anxiety was higher in females than in males and this was also supported by a study conducted by Lee J et al, Jafar MF et al and Matthias AT et al.[15–17]

In the present study, the anxiety level on both groups were higher in patients who have not experienced any previous anesthesia or operation. These study results were consistent with the study conducted by Matthias AT et al,[17] which demonstrates that patients who have experienced a surgery before were less anxious than those who have not.

The present study shows that there is a significant difference in Systolic and Diastolic blood pressures and heart rate on a day before and on the day of surgery which is similar to the study results of Ahmetovic J et al,[18] in which there is a marked difference in the MAP values, however, there was no statistical significance in the heart rate as found in our study.

The present study utilised a tool containing a questionnaire based scale APAIS (1996). This scale consist of six items, two each for measuring preoperative anxiety regarding anaesthesia and the surgical procedure and the remaining two for need-for-information. Each of these questions were asked from patients individually a day before and on the day of surgery, in which patients were found to be more anxious about the surgical procedure than about the anaesthesia. Based on this questionnaire it was found that the need-for-information regarding the surgical procedure was more on a day before surgery than on the day of surgery. However, most of the patients were not aware or did not like to receive the information about the anaesthetic procedure.

Many studies have been conducted around the world to find out the prevalence of preoperative anxiety. The level of anxiety have been reported to be 59.9% by Woldegerima Y.B. et al; 88% by KilincM et al; 87% by Lee J et al; 61% by Mulugeta H et al; 72.7% by Maheshwari D et al; 54% by Tulloch I et al.[13,14,19–22] Berth H et al,[23] illustrated the use of the APAIS in assessing the preoperative anxiety and concluded that it is a reliable and valid instrument, especially due to its brevity. In the present study, the preoperative anxiety levels were assessed and compared a day before and on the day of surgery and the results are found to be not-significant.

Limitations

Ours is a single institution study in a rural area of Haryana which cannot be applied to whole population. Literacy was not considered which can be a big factor in predicting anxiety levels preoperatively.

Conclusion

Results of the present study illustrated that patients did not have significant preoperative anxiety levels. On the basis of our findings, we conclude that most of the patients lack basic knowledge of anaesthesia and surgical procedure. It is required for both surgical and anaesthesia team to provide adequate information regarding operative procedure to the patients, preoperatively and to identify various patient subgroups that require additional preoperative support and help them accordingly.

References

1. Shri R. Anxiety: Causes and Management. J Behav Sci. 2010;5(1):100–118.
2. Balasubramaniyan N. Evaluation of Anxiety Induced Cardiovascular Response in known Hypertensive Patients Undergoing Exodontia - A Prospective Study. J Clin Diagn Res. 2016;10(8):123–130. Available from: https://dx.doi.org/10.7860/jcdr/2016/19685.8391.
3. Thomas V, Heath M, Rose D, Flory P. Psychological characteristics and the effectiveness of patient-controlled analgesia. Br J Anaesth. 1995;74(3):271–276. Available from: https://dx.doi.org/10.1093/bja/74.3.271.
4. Corman HH, Hornick EJ, Kritchman M, Terestman N. Emotional reactions of surgical patients to hospitalization, anesthesia and surgery. Am J Surg. 1958;96(5):646–653. Available from: https://dx.doi.org/10.1016/0002-9610(58)90466-5.
5. Wallace LM. Psychological preparation as a method of reducing the stress of surgery. J Hum Stress. 1984;10:62–77. Available from: https://doi.org/10.1080/0097840x.1984.9934961.
6. Shevde K, Panagopoulos G. A survey of 800 patients' knowledge, attitudes, and concerns regarding anesthesia. Anesth Analg. 1991;73(2):190–198. Available from: https://doi.org/10.1213/00000539-199108000-00013.
7. Hicks J, Jenkins J. The measurement of preoperative anxiety. J R Soc. 1998;81:517–526.
8. Jawaid M, Mushtaq A, Mukhtar S, Khan Z. Preoperative anxiety before elective surgery. Neurosciences. 2007;12(2):145–148.
9. Muniandy RK, Sinnathamby V. Preoperative anxiety levels among pre-medicated and non pre-medicated patients undergoing elective surgery. Eur J Anaesthesiol. 2012;29(1):135. Available from: https://dx.doi.org/10.1097/00003643-201206001-00443.
10. Moerman N, Dam FSV, Muller MJ, Oosting H. The Amsterdam Preoperative Anxiety and Information Scale (APAIS). Anesth Analg. 1996;82(3):445–51. Available from: https://doi.org/10.1097/00000539-199603000-00002.
11. Celik F, Edipoglu IS. Evaluation of preoperative anxiety and fear of anesthesia using APAIS score. Eur J Med Res. 2018;23:41. Available from: https://dx.doi.org/10.1186/s40001-018-0339-4.
12. Yilmaz M, Sezer H, Gürler H, Bekar M. Predictors of preoperative anxiety in surgical inpatients. J Clin Nurs. 2012;21(7-8):956–964. Available from: https://dx.doi.org/10.1111/j.1365-2702.2011.03799.x.
13. Erkilic E, Kesimci E, Soykut C, Doger C, Gumus T, Kanbak O. Factors associated with preoperative anxiety levels of Turkish surgical patients: from a single center in Ankara. Patient Prefer Adherence. 2017;11:291–296. Available from: https://dx.doi.org/10.2147/ppa.s127342.
14. Maheshwari D, Ismail S. Preoperative anxiety in patients selecting either general or regional anesthesia for elective cesarean section. J Anaesthesiol Clin Pharmacol. 2015;31(2):196. Available from: https://dx.doi.org/10.4103/0970-9185.155148.
15. Lee JS, Park YM, Ha KY, Cho SW, Bak GH, Kim KW. Preoperative anxiety about spinal surgery under general anesthesia. Eur Spine J. 2016;25(3):698–707. Available from: https://doi.org/10.1007/s00586-015-3788-2.
16. Jafar MF, Khan FA. Frequency of preoperative anxiety in Pakistani surgical patients. J Pak Med Assoc. 2009;59(6):359–363.
17. Matthias AT, Samarasekera DN. Preoperative anxiety in surgical patients - experience of a single unit. Acta Anaesthesiol Taiwan. 2012;50(1):3–6. Available from: https://dx.doi.org/10.1016/j.aat.2012.02.004.
18. AhmetovicDjug J, Hasukic S, Djug H, Hasukic B, Jahic A. Impact of Preoperative Anxiety in Patients on Hemodynamic Changes and a Dose of Anesthetic During Induction of Anesthesia. Med Arch. 2017;71:330. Available from: https://dx.doi.org/10.5455/medarh.2017.71.330-333.
19. B W, L F, T Y, G H. Prevalence and factors associated with preoperative anxiety among elective surgical patients at University of Gondar Hospital. Gondar, Northwest Ethiopia, 2017. A cross-sectional study. Int J Surg Open. 2018;10:21–29. Available from: https://doi.org/10.1016/j.ijso.2017.11.001.
20. Ozer A, Kilinc M. Fear of going under general anesthesia: A cross-sectional study. Saudi J Anaesth. 2017;11(1):128. Available from: https://dx.doi.org/10.4103/1658-354x.197361.
21. Mulugeta H, Ayana M, Sintayehu M, Dessie G, Zewdu T. Preoperative anxiety and associated factors among adult surgical patients in Debre Markos and Felege Hiwot referral hospitals, Northwest Ethiopia. BMC Anesthesiology. 2018;18(1):155. Available from: https://dx.doi.org/10.1186/s12871-018-0619-0.
22. Tulloch I, Rubin JS. Assessment and Management of Preoperative Anxiety. J Voice. 2019;33(5):691–696. Available from: https://doi.org/10.1016/j.jvoice.2018.02.008.
23. Berth H, Petrowski K, Balck F. The Amsterdam Preoperative Anxiety and Information Scale (APAIS) - the first trial of a German version. Psychosoc Med. 2007;4:1. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/pmc2736533/.

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