Patient satisfaction and its associated factors towards perioperative anesthesia service among surgical patients: A cross-sectional study

Diriba Teshome, Yordanos Mulat, Efrem Fenta, Metages Hunie, Simegnew Kibret, Tadese Tamire, Yewlsew Fentie

Department of Anesthesia, College of Health Sciences, Debre Tabor University, Debre Tabor, Ethiopia

ARTICLE INFO

Keywords: Anesthesia Care Perioperative Satisfaction

ABSTRACT

Background: Patient satisfaction with perioperative anesthesia services is not well established in developing countries like Ethiopia. This study aimed to assess surgical patients’ satisfaction with perioperative anesthesia service and its associated factors.

Method: A cross-sectional study design was conducted in patients who underwent surgeries at Debre Tabor Comprehensive Specialized Hospital, in North Central Ethiopia. Data were collected by Leiden perioperative care patient satisfaction questionnaire (LPPSq) within 24 h postoperatively, after translating to the local language (Amharic). Bivariable and multivariable logistic analyses were done to identify factors associated with satisfaction with perioperative anesthesia service care. Statistical significance level was set at \( P < 0.05 \) with 95% CI.

Results: Analysis was done on 387 patients with a response rate of 94.8%. The overall mean satisfaction of patients with perioperative anesthesia care was 62.62% and about 53.7% [95% CI = (48.6–58.4)] of patients were satisfied with perioperative anesthesia service. The mean satisfaction of perioperative anesthesia service in the patient-staff relationship domain was 61.44%; in the information provision domain was 60.32%, and in the fear and concern domain was 72.06%.

Conclusion: There was a moderate level of satisfaction in patients with perioperative anesthesia service. Among the subscales of LPPSq, the lowest satisfaction score was in the information provision domain and the highest satisfaction score was in the fear and concern domain.

1. Introduction

Perioperative anesthesia service is an important component of healthcare. It includes a perioperative assessment to determine risk factors related to anesthesia and surgery, planning for the type of anesthesia with the possible outcome. Thus, patient satisfaction with perioperative anesthesia service is the degree of satisfying patients’ expectations; which is an important component and quality indicator of the health care system [1, 2, 3, 4].

Patient satisfaction is a complex concept that mainly depends on the subjective judgment of a patient. It is also related to several factors including the patient’s emotional, social, cultural, past experiences, and future expectations. Patients tend to compare their expectations with the experiences they had as well as with the actual outcomes. When those expectations are not met by the actual situation, the patient may become dissatisfied [5, 6, 7, 8].

Even though patients develop loyalty towards professionals and the quality of care of the hospital; currently, patients are looking for easy and quick care in the fast-growing world [9]. In developing countries, patient’s anticipation for health care systems seems largely ignored by many factors such as quality of clinical care provided, the behavior of staff, waiting time, the cost of care, hospital infrastructure, physical comfort, emotional support, and respect for patient preferences [10, 11, 12]. Our country, being among the least fortunate state in health in the world with high morbidity and mortality from communicable disease puts high pressure on patient satisfaction and quality of service delivery [13, 14, 15].

Even though few studies in anesthesia have assessed patient satisfaction, most are restricted to day case surgical patients as well as regional procedures. Patient satisfaction with peri-operative anesthesia service and associated factors remains largely undiscovered [16, 17, 18].

It is very important to identify areas of patient dissatisfaction, to correct and minimize dissatisfaction with perioperative anesthesia care.

* Corresponding author.

E-mail address: fyewlsew@gmail.com (Y. Fentie).

https://doi.org/10.1016/j.heliyon.2022.e09063
Received 29 April 2021; Received in revised form 2 October 2021; Accepted 3 March 2022
2405-8440/© 2022 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
This study aimed to assess satisfaction and associated factors of perioperative anesthetic service among surgical inpatients.

2. Methods and materials

2.1. Study area and period

This cross-sectional study was conducted in DTCSH which is a public hospital established in 1934 and located in the South Gondar Zone of Amara Regional State of Ethiopia. It is 97 km to the southwest of Bahir Dar, the capital city of Amara Regional State. According to the 2007 census, the total population of this town was 155,596. It has a latitude and longitude of 11051N 38.0170E with an elevation of 2,706 m (8878ft) above sea level. The hospital provides surgical and anesthesia services with seven operation theatres. The study was conducted on patients who underwent surgery at DTCSH from February 01 to June 30, 2020.

2.2. Inclusion and exclusion criteria

Surgical patients with the age of 18 and above, and ASA I-IV were included; whereas patients with cognitive dysfunction or other inabilities to finish the interview (communication or hearing impairment), very seriously ill patients who cannot communicate post-operatively, patients who were discharged before 24 h, and patients who were operated on in the minor operation room were excluded in this study.

2.3. Sample size and sampling technique

The sample size was determined by using single proportion population formula taking the proportion from a study done at Gondar University Hospital with an overall patient satisfaction level of 64.7% (28), and the sample size was calculated by using a 95% confidence interval and 5% margin of error. The sample size was determined using the following formula.

\[ n = \left( \frac{Z_{\alpha/2}}{d} \right)^2 \frac{P(1-P)}{\alpha^2} \]

whereas; \( n \) = sample size, \( Z = \) confidence interval \((1.96)\), \( P = \) estimated prevalence \((0.647)\), \( \alpha = \) margin of sampling error to be tolerated \((0.05)\).

Constituting, the values in formula, gives \( n = 352\). By considering a 15% non-respondent rate the final sample size is 405. All consecutive patients who met the inclusion criteria were sampled till the intended sample size was achieved.

2.4. Data collection instrument and procedures

Data were collected by four anesthetists after 24 h postoperatively using the adopted Leiden Perioperative Care Patient Satisfaction questionnaire (LPPSq) tool. This tool has been widely used to quantify patient satisfaction with good reliability and validity [18, 19, 20, 21, 22]. The LPPSq has three domains: information provision (consists of 6 questions and five points’ Likert scale); fear and concern (consists of 6 questions and four points’ Likert scale); and staff-patient relationship (consists of 14 questions and four points’ Likert scale). There are additional three-component measures of the tool other than the dimensions: Discomfort and needs with nine questions and four points Likert scale, Professional competence with three questions with yes or no answer, and third, service-related with three questions two of them are four-point Likert scale, and one question with yes or no answer [5].

Before data collection, the English version of LPPSq was translated to the Amharic local language by three language expertise and back to English by the other three language expertise to confirm the correctness of language translation. Also, the content validity of the tool was assessed and insured by research committee members of the anesthesia department.

2.5. Data quality assurance

After training was given to data collectors, data were collected and properly filled in the prepared format. The supervision was made throughout the data collection period to maintain the accuracy, clarity, and consistency of the collected data.

2.6. Ethical consideration

The ethical clearance was obtained from Debre Tabor University and the written informed consent was taken from every study participant after informing about the objective of the study.

| Table 1. Socio-demographic characteristics of study participants (n = 387). |
|-------------------|-------------------|-------------------|
| Variables          | Frequency | Percentage |
| Gender             |           |           |
| Male               | 223       | 57.6     |
| Female             | 164       | 42.4     |
| Age                |           |           |
| 18–39              | 159       | 41.1     |
| 40–49              | 127       | 32.8     |
| 50 and above       | 101       | 26.1     |
| Marital status     |           |           |
| Married            | 162       | 41.9     |
| Not married        | 225       | 58.1     |
| Residence          |           |           |
| Urban              | 174       | 45.0     |
| Rural              | 213       | 55.0     |
| Educational level  |           |           |
| Illiterate         | 155       | 40.1     |
| Read and write     | 83        | 21.4     |
| Elementary and above | 149 | 38.5     |
| Profession         |           |           |
| Farmer             | 195       | 50.4     |
| Student            | 68        | 17.6     |
| Employed worker    | 124       | 32.0     |
| Income Annually(ETB) |         |           |
| Less than 2500     | 232       | 59.9     |
| greater or equal 2500 | 155 | 40.1     |
| Health insurance   |           |           |
| Paying             | 190       | 49.1     |
| Free               | 197       | 50.9     |
| Perioperative visit|           |           |
| Visited            | 288       | 74.4     |
| Not visited        | 99        | 25.6     |
| Type of anesthesia |           |           |
| General            | 203       | 52.5     |
| Regional           | 184       | 47.5     |
| Type of surgery    |           |           |
| General surgery    | 219       | 56.6     |
| Orthopedics surgery| 105       | 27.1     |
| Gynecologic procedures | 63   | 16.3     |
| Nature of case     |           |           |
| Elective           | 247       | 63.8     |
| Emergency          | 140       | 36.2     |
| ASA PS             |           |           |
| ASA I              | 240       | 62.0     |
| ASA II             | 109       | 28.2     |
| ASA III            | 38        | 9.8      |
Table 2. Identified components' and factor loadings of LPPSq.

| Items                                                                 | Factors |
|----------------------------------------------------------------------|---------|
| Did the theatre staff take into account your personnel preferences? | .729    |
| Did the theatre staff pay attention to your questions?               | .729    |
| Did you find the theatre staff knowledgeable?                       | .721    |
| Did the theatre staff pay attention to complaints like pain and nausea? | .705    |
| Did you find the theatre staff professional?                        | .658    |
| Did the theatre staff pay attention to you as an individual?        | .658    |
| Were you treated kindly by the theatre staff?                       | .654    |
| Were the theatre staff polite?                                      | .644    |
| Did you experience professional competence?                         | .640    |
| Did the theatre staff show understanding of your situation?         | .599    |
| The amount of information about the operation?                      | .682    |
| Seeing the operating room?                                          | .618    |
| The explanation about your stay at the operating theatre.           | .610    |
| The explanation about the operation?                                | .608    |
| Pain due to anesthetic?                                             | .606    |
| The amount of information about your stay in the operating theatre? | .560    |
| Pain due to surgery?                                                | .531    |
| The amount of information about anesthesia                          | .501    |
| Awaking during the operation?                                       | .476    |
| The explanation about anesthesia                                    | .420    |
| Did the theatre staff take into account your privacy?               | .662    |
| Did you have confidence in the theatre staff?                       | .644    |
| Had the theatre staff an open attitude?                             | .612    |
| Were the theatre staff respectful?                                  | .487    |

2.7. Data entry and analysis

Data were cleaned, coded, and entered into Epidata version 4.2 and exported to SPSS version 23 for analysis. The internal consistency of satisfaction measures was checked using Cronbach’s α. Explanatory factor analysis was done to identify relationships between the measured items. Inter-item correlation and item-discriminant validity were applied to measure the relation of items within the scale and between the scales respectively. Percentage, mean and standard deviations were used as appropriate. The overall mean satisfaction score and mean satisfaction score for each dimension were computed. After categorizing the overall mean satisfaction score, independent variables were analyzed using binary logistic regression with perioperative patient satisfaction. Variables with a p-value of ≤0.2 from the bivariable analysis were fitted to a multivariable logistic regression, and some variables were considered with their clinical significance in the model. The odds ratio, 95% confidence interval, and p-value were computed to identify associated factors and to determine the strength of the association. A p-value of <0.05 was considered statistically significant. Hosmer-Lemeshow test of goodness of fit was performed to check the appropriateness of the analysis model.

Table 3. Reliability of items of perioperative satisfactions.

| Dimension               | Number of Items | Cronbach A | Mean dimension score (SD) | Maximum possible dimension score | Inter-item correlation (IIC) | Item-discriminant validity (IDV) |
|-------------------------|-----------------|------------|---------------------------|---------------------------------|------------------------------|---------------------------------|
| Information             | 6               | 0.77       | 18.09 (4.97)              | 30                              | 0.22–0.55                    | 0.10–0.55                       |
| Fear & concern          | 4               | 0.653      | 11.53 (2.70)              | 16                              | 0.25–0.42                    | 0.04–0.42                       |
| Staff-patient relationship | 14            | 0.897      | 43.01 (10.92)             | 70                              | 0.07–0.58                    | 0.04–0.58                       |
| LPPSq                   | 24              | 0.911      | 72.64 (16.00)             | 116                             | c                            | C                               |

* Significant value (p < 0.001), c = not computable.

2.8. Operational definitions

Satisfied: Patients who scored greater than or equal to the mean perioperative LPPSq values were considered satisfied.

Dissatisfied: Patients who scored less than the mean perioperative LPPSq values were considered dissatisfied.

3. Results

This study was conducted on a total of 387 participants with a response rate of 94.8%. Most of them (41.1%) were in the age range of 18–39 years, 57.6% were males, and majorities (55.0%) were from rural areas (Table 1).

3.1. Exploratory factor analysis for subscales of satisfaction

Confirmatory factor analysis was done to confirm factor validity before computing patient satisfaction levels. The analysis was performed using factor correlation matrices. KMO and Bartlett’s tests were checked to show a KMO value of 0.928 and Bartlett’s tests of sphericity (P = 0.00). Extraction of commonalities was checked on the matrix and all item values were greater than 0.3. Parallel analysis was performed and three new components of eigenvalues have fulfilled the criteria and the component correlation matrix of Varimax was an appropriate model (Table 2). The reliability of the new factors was checked that showed values of factor-1 (Cronbach’s α = 0.89), factor-2 (Cronbach’s α = 0.809), and factor -3 (Cronbach’s α = 0.701).

3.2. Reliability of items of peri-operative satisfaction

The internal consistency of the three dimensions and total LPPSq were showed a good consistency level. The internal consistencies of inter-item correlation (IIC) of the three dimensions were significant (Table 3).

3.3. Satisfaction level of patients in perioperative anesthesia service

The overall mean satisfaction score of patients with peri-operative anesthesia service was 62.62% [95% CI = (61.31–64.03)]. About 53.7% (95% CI = (48.6–58.4]) patients were satisfied with the perioperative anesthesia service. Among the three dimensions, fear and concern showed the highest mean satisfaction level (72.06%), while information provision was showed the lowest mean satisfaction level 60.32% (Figure 1). Also other than perioperative domains, the mean satisfaction score of fear and concern related to anesthesia was 69.17%, professional competence 70.71%, and Service provision 65.49%.

3.4. Factors associated with the overall satisfaction of patients with perioperative anesthesia care

The multivariable logistic analyses showed that patients who came from rural areas were 3.17 (AOR = 3.17; 95%CI: 1.08–9.35) times more satisfied than patients who came from urban areas. The odds of being illiterate were 2.72 (AOR = 2.72; 95%CI: 1.19–6.17) times more satisfied than patients with its counterpart. Patients who have health insurance
coverage were 4.02 (AOR = 4.02; 95%CI: 2.39–6.73) more satisfied than patients with no health insurance. Also, patients who were visited pre-operatively in the pre-anesthesia clinic were 3.65 (AOR = 3.65; 95%CI: 1.97–6.76) times more likely satisfied who had not visited the pre-anesthesia clinic. Also, patients done with regional were 3.19 (AOR = 3.19; 95%CI: 1.89–5.37) times more likely satisfied with than patients done under general anesthesia; and emergency patients were 1.87 (AOR = 1.87; 95%CI: 1.07–3.27) times more likely satisfied with perioperative anesthesia service than patients done with elective bases (Table 4).

### 4. Discussion

In this study, the overall mean satisfaction score of patients with perioperative anesthesia service was 62.62%. Similarly, studies

---

### Table 4. Factors affecting the satisfaction of study participants with perioperative anesthesia care (n = 387).

| Variables                  | Satisfaction level on Anesthesia service | Crude odds ratio (95% CI) | Adjusted odds ratio (95% CI) | p-value |
|----------------------------|-----------------------------------------|---------------------------|-------------------------------|---------|
| Age 18–39                  | Satisfied 87 (54.7%) Not Satisfied 72 (45.3%) | 1.45 (0.88,2.38)          | 1.69 (0.89,3.23)             | 0.110   |
| Age 40–49                  | Satisfied 75 (59.1%) Not Satisfied 52 (40.9%) | 1.72 (1.02,2.92)          | 1.93 (0.99,3.77)             | 0.054   |
| Age 50 and above           | Satisfied 46 (45.5%) Not Satisfied 55 (54.5%) | 1                          | 1                             |         |
| Residency Urban            | Satisfied 55 (31.6%) Not Satisfied 119 (68.4%) | 1                          | 1                             |         |
| Residency Rural            | Satisfied 153 (71.8%) Not Satisfied 60 (28.2%) | 5.52 (3.56,8.54)          | 3.17 (1.08,9.35)             | 0.036*  |
| Educational level Illiterate | Satisfied 112 (72.3%) Not Satisfied 43 (27.7%) | 4.33 (2.67,7.01)          | 2.72 (1.19,6.17)             | 0.017*  |
| Educational level Read and write | Satisfied 40 (48.2%) Not Satisfied 43 (51.8%) | 1.55 (0.89,2.66)          | 1.46 (0.69,3.09)             | 0.319   |
| Educational level Elementary and above | Satisfied 56 (37.6%) Not Satisfied 93 (62.4%) | 1                          | 1                             |         |
| Profession Farmer          | Satisfied 134 (68.7%) Not Satisfied 61 (31.3%) | 5.37 (3.28,8.78)          | 0.97 (0.30,3.14)             | 0.960   |
| Profession Student         | Satisfied 38 (55.9%) Not Satisfied 30 (44.1%) | 3.09 (1.67,5.73)          | 2.09 (0.91,4.83)             | 0.083   |
| Health insurance Paying    | Satisfied 64 (33.7%) Not Satisfied 126 (66.3%) | 1                          | 1                             |         |
| Health insurance Free      | Satisfied 144 (73.1%) Not Satisfied 53 (26.9%) | 5.35 (3.46,8.27)          | 4.02 (2.39,6.73)             | 0.000*  |
| Perioperative visit Visited | Satisfied 173 (60.1%) Not Satisfied 115 (39.9%) | 2.75 (1.71,4.42)          | 3.65 (1.97,6.76)             | 0.000*  |
| Perioperative visit Not visited | Satisfied 35 (35.4%) Not Satisfied 64 (64.6%) | 1                          | 1                             |         |
| Type of anesthesia General | Satisfied 73 (36.0%) Not Satisfied 130 (64.0%) | 1                          | 1                             |         |
| Type of anesthesia Regional | Satisfied 135 (73.4%) Not Satisfied 49 (26.6%) | 4.91 (3.18,7.58)          | 3.19 (1.89,5.37)             | 0.000*  |
| Nature of cases Elective   | Satisfied 126 (51.0%) Not Satisfied 121 (49.0%) | 1                          | 1                             |         |
| Nature of cases Emergency  | Satisfied 82 (58.6%) Not Satisfied 58 (41.4%) | 1.36 (0.89,2.06)          | 1.87 (1.07,3.27)             | 0.028*  |

Note: the p-values were extracted from the multivariate logistic regression model.

* = p-value <0.05 1 = reference.
conducted in Saudi Arabia (67.3%) [6], Rwanda (61.9%) [25], and Ethiopia (65%) [2] had comparable satisfaction scores regarding peri-operative anesthesia service. In contrast to this finding, studies in Netherland (92.1%) [20], England (86.7%) [21], Eritrea (68.8%) [5], and Ethiopia (99.3%) [23] had higher satisfaction scores regarding perioperative anesthesia service.

This study revealed that the satisfaction of patients on perioperative anesthesia service in the patient-staff relationship subscale was 61.4%, the information provision subscale was 60.32%, and the fear and concern subscale was 72.06%. The lowest level of satisfaction was seen in the information provision. In agreement with this finding, some studies reported that the information provision domain was the lowest score of perioperative anesthesia service dimensions [5, 6, 20, 21, 25]. The highest level of satisfaction was seen in the fear and concern subscale. Dissimilarly, a higher patient-staff relationship score has been seen in a study done in Eritrea [5] and the United Kingdom [21]. This might be due to a lack of patient counseling and preparation for surgery.

This study showed that patients who came from rural areas, who had health insurance coverage, patients who were illiterates, patients who visited pre-anesthesia clinics, patients who received regional anesthesia and were done under emergency bases were more satisfied with perioperative anesthesia care service than their counterparts (Table 4). In contrary to this finding a study done in Eritrea patients who came from urban settings and literates were more satisfied with perioperative anesthesia services [5]. The satisfaction of patients done under emergency cases than their counterpart could be due to most emergency patients might be getting relieved from their life-threatening conditions.

This study showed as there is a positive association between having a pre-anesthesia clinic visit and satisfaction level. Another study conducted in Ethiopia also revealed that having a preoperative visit was positively associated with patient satisfaction [24]. Also, regional anesthesia had a positive association with perioperative patient satisfaction as compared to general anesthesia. Some studies in the United Kingdom [21], Ethiopia [2], and Eritrea [5] showed that receiving regional anesthesia was more likely satisfied with perioperative anesthesia services than general anesthesia.

In this study patients done under emergency cases were more satisfied with perioperative anesthesia service than elective cases. This result contradicts the finding of a study done in Eritrea [22]. This might be due to healthcare professionals being prepared well and giving greater care for life-threatening conditions as elective cases.

4.1. Limitations of the study

Being a single-center study might be the main limitation of this study. Even though there were alternatives to logistic regression (Cox regression model, the Log-binary regression model, and the Poisson regression model with robust variance regression) that may be more appropriate for this study, the logistic regression model was used with its limitations.

5. Conclusion

There was a moderate level of satisfaction was achieved in patients with perioperative anesthesia service. Among the subscales of LPPSq, the lowest satisfaction score was in the information provision and the highest satisfaction score was in the fear and concern domain.

6. Ethical approval and consent to participate

To keep the ethical soundness of the research, an ethical approval letter was obtained from Debre Tabor University. Written informed consent was also secured from each study participant. 7. Data sharing statement

The data will be shared upon reasonable request from the corresponding author.

Declarations

Author contribution statement
Diriba Teshome: Conceived and designed the experiments; Analyzed and interpreted the data.
Yordanos Mulat, Metages Hunie and Tadese Tamire: Performed the experiments; Contributed reagents, materials, analysis tools or data.
Efrem Fenta, Simegnew Kibret and Yewlewsew Fentie: Analyzed and interpreted the data; Wrote the paper.

Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

Acknowledgements

Debre Tabor University and Debre Tabor Comprehensive Specialized Hospital administrative bodies.

References

[1] G. Vyhunthan, N. de Silva, Audit to evaluate perioperative visit to patient by anaesthetist, Sri Lankan J. Anaesthesiol. 20 (2) (2012).
[2] E.G. Gehremedhn, V. Nagarantham, Assessment of patient satisfaction with the perioperative anesthetic evaluation, Patient Relat. Outcome Mean. 5 (2014) 105.
[3] S. Kampo, Evaluation of patient satisfaction of anaesthetic assessment in a district hospital in Ghana, Anaesth. Crit. Care Pain Manag. 2 (2019) 1–12.
[4] R. Lyncghoi, G. Brindha, A study on patient satisfaction of outpatient, Indian J. Sci. Technol. 8 (2015) 32.
[5] Y.M. Andemeskel, T. Esholzol, G. Gebreychanuis, E.H. Tesfamariam, Patient satisfaction with peri-operative anesthesia care and associated factors at two National Referral Hospitals: a cross sectional study in Eritrea, BMC Health Serv. Res. 19 (1) (2019) 1–8.
[6] G. Abd El-Nasser, N. Mohamed, Patient satisfaction with perioperative care and its relationship with patient characteristics, Med. J. Cairo Univ. 81 (2) (2013).
[7] V. Bening, T. Heidegger, M. Laupheimer, M. Nübling, Patient satisfaction and quality of recovery, Anaesthesia 73 (4) (2018) 521–522.
[8] D. Whitaker, H. Booth, P. Glyburn, W. Harrop-Griffiths, H. Hosie, B. Kilvington, et al., Association of anaesthetists of great britain and Ireland. Immediate post-anesthesia recovery 2013: association of anaesthetists of great britain and Ireland, Anaesthesia 68 (3) (2013) 288–297.
[9] H.-R. Hsiao, P.-C. Wang, W.-N. Cheng, L.-A. Lee, N.-H. Chen, T.-J. Fang, et al., Survey of short-term patient satisfaction after surgery for obstructive sleep apnoea, Chang Gung Med. J. 32 (2) (2009) 212–219.
[10] Jsd Freitas, AEIdBC Silva, R. Minamivasa, A.L.Q. Bezerra, MRGd Sousa, Quality of nursing care and satisfaction of patients attended at a teaching hospital, Rev. Latino-Am. Enferm. 22 (3) (2014) 454–460.
[11] M.W. Nyongesa, R. Oywango, R. Kakai, Determinants of clients’ satisfaction with healthcare services at Pumwani Maternity hospital in Nairobi-Kenya, Int. J. Soc. Behav. Sci. 2 (2) (2014) 11–17.
[12] B.G. Woji, Evaluation and associated factors at menelik ?? referral hospital Addis Ababa, Ethiopia, Evaluation 35 (2017).
[13] F. Assefa, A. Mosse, Assessment of clients’ satisfaction with health service deliveries at Jimma University specialized hospital, Ethiop. J. Health Sci. 21 (2) (2011) 101–110.

[14] B. Abdosh, The quality of hospital services in eastern Ethiopian patient’s perspective, Ethiop. J. Health Dev. 20 (3) (2006).

[15] Y.A. Ambelie, A.F. Demisie, M.G. Gebregziabher, Patients’ satisfaction and associated factors among private wing patients at Bahirdar Felege Hiwot referral hospital, North west Ethiopia, Sci. J. Publ. Health 2 (5) (2014) 417–423.

[16] D. Tong, F. Chung, D. Wong, Predictive factors in global and anesthesia satisfaction in ambulatory surgical patients, J. Am. Soc. Anesthesiol. 87 (4) (1997) 856–864.

[17] P. Auquier, N. Pernoud, N. Bruder, M.-C. Simeoni, J.-P. Auffray, C. Colavolpe, et al., Development and validation of a perioperative satisfaction questionnaire, J. Am. Soc. Anesthesiol. 102 (6) (2005) 1116–1123.

[18] S.F. Barnett, R.K. Alagar, M.P. Grocott, S. Giannaris, J.R. Dick, S.R. Moonesinghe, Patient-satisfaction measures in anesthesia: qualitative systematic review, Anesthesiology 119 (2) (2013) 452–478.

[19] D.N. Baroudi, W.H. Nofal, N.A. Ahmad, Patient satisfaction in anesthesia: a modified Iowa satisfaction in anesthesia scale, Anesth. Essays Res. 4 (2) (2010) 85.

[20] M. Caljour, M. Van Brueckom, F. Boer, Patient’s satisfaction with perioperative care: development, validation, and application of a questionnaire, Br. J. Anaesth. 100 (5) (2008) 637–644.

[21] H.A. Jala, M.A. Caljour, N.M. Bedforth, J.G. Hardman, Patient satisfaction with perioperative care among patients having orthopedic surgery in a university hospital, Local Reg. Anesth. 3 (2010) 49–55.

[22] Y.M. Andemeskel, T. Esholz, G. Gebreyohannes, E.H. Tesfamariam, Patient satisfaction with peri-operative anesthesia care and associated factors at two National Referral Hospitals: a cross sectional study in Eritrea, BMC Health Serv. Res. 19 (1) (2019) 669.

[23] A. Belihun, M. Alemu, B. Mengistu, A prospective study on surgical inpatient satisfaction with perioperative anesthesia service in Jimma University Specialized Hospital, Jimma, South West Ethiopia, J. Anesth. Clin. Res. 6 (3) (2015) 1–9.

[24] K.M. Benwu, H.G. Gebremedhin, A prospective study on elective surgical inpatient satisfaction with perioperative anesthesia service at Ayder comprehensive specialized hospital, Mekelle, Ethiopia, BMC Anesthesiol. 19 (1) (2019) 46.

[25] L. Ingabire, Patients Satisfaction with Perioperative Care at Oshen Fing Feisal Hospital, University of Rwanda, 2017.