

# Factors associated with patient satisfaction with perioperative anesthesia care at Hawassa university comprehensive specialized hospital, Ethiopia: Cross-sectional study design

Amanu Gashaw Siraneh (✉ [agashaw2020@gmail.com](mailto:agashaw2020@gmail.com))

Hawassa University <https://orcid.org/0000-0001-6988-4789>

Getahun Dendir Welda

Wolaita Sodo University

Kebreab Paulos Chanko

Wolaita Sodo University

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## Research

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# Abstract

## Background

Patient satisfaction in relation to perioperative anesthesia care represents an essential aspect of quality health care management. The assessment of patient satisfaction is a reality of practice today for good patient satisfaction with health care provider interaction and health influencing factors.

## Objectives

To assess the magnitude and associated factor of patient satisfaction towards anesthesia care at Hawassa University comprehensive specialized Hospital April 5, – May 5, 2019Gc.

## Method:

A prospective cross-sectional study design was employed in an adult surgical patient scheduled for surgery under general anesthesia and the regional anesthesia level of satisfaction and factor associated with satisfaction was analyzed. Data was entered into version 7 and transfer to SPSS version 25.0 for analysis. Normality test checked by using Shapiro-Wilk and Kolmogorov-Smirnov the data was normally distributed. Then the frequency, percentage, and cross-tabulation with different variables were determined, lastly, the magnitude and associated factor analyzed by binary logistic regression a multivariate logistic regression. Variables P-value < 0.2 binary logistic regression included in a multivariate logistic regression and p-value less than 0.05 was Taken as statistically significant.

## Result

A Total of 200 patient included in this study with a response rate of 100%. The main finding of this study was predictors of perioperative patient dissatisfaction were general anesthesia, duration of surgery, nausea, and vomiting, and pain after surgery. The magnitude of patient satisfaction is 60%. Odds of the patient who took general anesthesia were 2.31(1.096, 4.142)  $p = 0.026$  more dissatisfied than regional anesthesia. Odds of the patient duration of surgery 2-3hr 0.313(0.124, 0.792) less likely dissatisfied than the duration of surgery 1hr. The odds of patient nausea and vomiting AOR = 2.575(1.163, 5.698)  $P = 0.02$  more likely dissatisfied than didn't have nausea and vomiting. The odds of patient pain after surgery AOR = 2.28(1.084, 4.76) more likely dissatisfied than the patient didn't have pain after surgery.

## Conclusion

patient satisfaction with perioperative anesthesia care Compared to another study magnitude of satisfaction very low, regular study and intervention should do every time /year in order to increase

patient satisfaction.

## Background

Patient satisfaction is significant to measure quality care that can subsidize to balance the evaluation of the structure, process, and outcome of service. Several factors add to patient satisfaction, including availability and user-friendliness of service, the skill of health professionals, and clients own expectations (1-4).

Patient satisfaction is a personal and complex thought involving physical, emotional, mental, social, cultural factors and predetermines consequences, such as nausea vomiting, pain complication and delivery of evidence before procedure affects the quality of health care(2, 5-7).

Sometimes postoperative complications such as residual sedation, pain, vomiting, and other complaints affect patient satisfaction. As a result, if appropriate management and preventive measure had not taken patient satisfaction and features of care may be hindered (6, 8).

Patient satisfaction is progressively more appreciated measure of quality for health care. Factors patients dissatisfied preoperatively were general anesthesia, intraoperative awareness, pain during the operation, and pain immediately after operation (9). High satisfaction with perioperative anesthesia care relations between patient and anaesthetists during care and, absence of shivering and adequate postoperative pain control in the ward are significant prognosticators of patient satisfaction (10).

Patient satisfaction after anesthesia care is an important outcome for health care personnel, mainly for anesthesia providers. The assessment of patient satisfaction and the patient familiarity are key performance measures that are increasingly being used in compensation for performance plans, Institutional policies, training for healthcare providers, monitoring of patient outcomes, and documentation of monitoring activities. So the main objectives of this study to assess the magnitude and associated factor of patient satisfaction with anesthesia care.

## Method

### 2.1 Study design and patients

The prospective cross-sectional study was conducted at Hawass university comprehensive Specialized Hospital, which is located 273km away from Addis Ababa in the southern part of Ethiopia. Ethical approval was obtained from the ethical committee Hawassa University College of health science. Informed consent was taken from the study participant. All adult elective patients who will undergo surgery under anesthesia in HUSSH excluding Patients with an emergency, Day-case surgery, Psychiatric patient, Admission to ICU study period from April 5, -May 5, 2019. Because we use convince type of sampling technique, so sample size determination is not used.

## 2.2 Data collection

Data was collected by using a Structured Questionnaire and check list which contains, an independent variable that supposed to be associated with outcome and the level of satisfaction. 5-point Likert scale used, in order to measure satisfaction level: 1, strongly satisfied 2.satisfied 3 neither satisfied nor dissatisfied 4 dissatisfied 5 strongly dissatisfied. During analysis respondents strongly satisfied and satisfied grouped under satisfied: 3 neither satisfied nor dissatisfied 4 dissatisfied 5 strongly dissatisfied classified under dissatisfied. The data was collected by 5 trend anesthesia students Data collectors and supervisors were trained for a half-day on each item included in the study tools, objective, relevant of study, right of respondents, the confidentiality of information obtained. Regular supervision and follow up was made during data collection. Investigator was a check for completeness and consistency of data every day.

## 2.3 Data analyzing

Data were entered e-info version 7 and transfer to SPSS version 25 .0 for analysis. Normality test checked by using Shapiro-Will and Kolmogorov-Smirnov the data was normally distributed. Then the frequency, percentage, and cross-tabulation with different variables were determined, lastly, the magnitude and associated factor analyzed by binary logistic regression a multivariate logistic regression. Variables P-value < 0.2 binary logistic regression included in a multivariate logistic regression and p\_value less than 0.05 was taken as statistically significant.

## 2.4 Operational definitions

- Satisfaction – meeting the apparent needs and the anticipations of the clients in relative to factors related to the health care worker and facilities
- Client – An individual who purchases or uses a good or service
- Quality – An essential or characteristics or nature as belonging to or distinguish a thing
- Service – Providing accommodation and activities required by the public or others.
- Very satisfied – Absolutely, awfully meet the expectations, needs or desires of someone,
- Neutral – Have not good or bad feelings at the same time.
- Dissatisfied – Who are unhappy or disappointed with a situation?
- 5-point Like-rt scale A type of psychometric response scale in which respondents specify their level of agreement to a statement typically in five points used, in order to measure satisfaction level .1, strongly satisfied 2.satisfied 3 neither satisfied nor dissatisfied 4 dissatisfied 5 strongly dissatisfied

## 3. Results

### 3.1. Socio-demographic characteristics of study participants

A Total of 200patient included in this study with a response rate of 100%.The magnitude of patient satisfaction is 60% (120) (fig1).The study enrolled 128(64%) male and 72(36%) female.75 (58.6%) male patients were more satisfied than females. Majority of patient age distribution under 19-27 54(27%), 28-36 47(23.5%) and 37-45 42(21%).Most of the participant's educational levels grade 7-12 54(27%), illiterate 48(24%), and grade 1-6 41(20.5%).majority of participant educational level above grade 12 more satisfied than other educational levels.(tabel1)

Table 1 Socio demographic characteristics patient who undergo elective surgery under anesthesia at HUCSH in2019 Gc.

Variable		Frequency n(%)	Satisfaction n (%)		p-value
			satisfied	dissatisfied	
Age group	19-27	54(27)	29 (60.4)	26(39.6)	0.897
	28-36	47(23.5)	30(63.8)	17(36.2)	
	37-45	42(21)	24(57.1)	18 (42.9)	
	46-54	21(10.5)	15(71.4)	6(28.6)	
	55-63	13(6.5)	10(76.9)	3(23.1)	
	64-72	16(8)	12(75)	4(25)	
	>72	7(3.5)	3 (42.9)	4(57.1)	
Sex	M	128(64)	75(58.6)	53(41.4)	0.849
	F	72(36)	45(62.5)	27(37.5)	
Educational status	Illiterate	48(24)	30(62.5)	18(37.5)	0.446
	Read &write	23(11.5)	14(60.9)	9(39.1)	
	1-6	41(20.5)	22(53.7)	19(46.3)	
	7-12	54(27)	29(53.7)	25(46.3)	
	>12	34(17)	26(76.5)	8(23.5)	
Residency	Urban	99(49.5)	61(61.6)	38(38.4)	0.644
	Rural	101(50.5)	59(58.4)	42(41.6)	

<sup>a</sup>Number,% per cent

### 3.2. Anesthesia and surgery associated risk factor that affects the magnitude of patient satisfaction

The commonest type of anesthesia performed for the participants was regional anesthesia 56 % ( 112). 78 (68.4) participants performed with regional anesthesia were more satisfied than general anesthesia 48(42.8%). Type of surgery performed was orthopaedic surgery 80(40%), general surgery 57(28.5%), gynaecology surgery 33(16.5%) and the least type of surgery was urologic30 (15%). the patient underwent surgery for the first time 129(64.5%), 2-3 times 59(29.5), and patients have undergone surgery for >3 times 12(6%). The majority of participant Length of surgical time 2-3h 98(49%) followed one-hour a 60(30%) and the remaining producers took. Patients more than 3times undergo surgery were dissatisfied 5(51.7%) followed by patients undergone surgery for the first time 53(41.1%).duration of surgery greater than 3hr 24(57.1) more dissatisfied followed by the duration of surgery 2-3hr 36(36.7%). the patient performed with regional anesthesia and duration of surgery statistically significant binary logistic regression( p<0.05).(Tabel2)

Table 2. Anesthesia and surgery associated risk factor that affects satisfaction. Undergone elective surgery at, HUCSH, 2019GC.

Variable	Category	Frequency	satisfaction		CO95% C.I.for EXP(B)	p-value
			satisfied	dissatisfied		
Types of anesthesia	RA	112(56)	78 (68.4)	36(31.6)	1	0.005*
	GA	85(42.5)	42 (48.8)	44(51.2)	2.27(1.73,4.40)	
Type of surgery	Urologic	30(15)	17 (56.7)	13(43.3)	1.143(0.404,3.23)	0.801
	General surgery	57(28.5)	35(61.4)	22(28.6)	0.66(0,273,1,594)	0.355
	Gynecology	33(16.5)	21(63.6)	12(36.4)	0.857(0.71,1.983)	0.719
	Orthopedics	80(40)	47(58.8)	(41.2)	1	
Pervious number of surgery	1	129(64.5)	76(58.9)	53(41.1)	0.992(0.299,3.29)	0.99
	2-3	59(29.5)	37(62.7)	2(37.3)	1.293(0.365,4.58)	0.691
	3	12(6)	7(58.3)	5(51.7)	1	
Duration of surgery	1 hour	60(30)	40(66.7)	20(33.3)	1	
	2-3 hour	98(49)	62( 63.3)	36(36.7)	4.47(1.92,10.41)	0.001*
	>3 hour	42(21)	18 (42.9)	24(57.1)	2.57(1.22,5.340)	0.013*

<sup>a</sup>Number, %per cent, \*statically significant, cOR=crude odd ratio

### 3.3. Post-operative complaints related to anesthesia cares that affect levels of patient satisfaction

The postoperative complication in this study was shivering 59(29.5%), pain after surgery54 (27%), nausea and vomiting 49(24.5%), and sore throat 39 (19.5%). the patient developed nausea and vomiting

32(69.4%) were more dissatisfied than didn't have nausea and vomiting. A patient who developed pain after surgery 33 (58.9%), sore throat 23(59%) and shivering 24 (40.7%) more dissatisfied than those didn't developed .nausea and vomiting, sore throat and pain after surgery statically significant in binary logistic regression (P<0.005).

Table3. Post-operative compliant associated with levels of satisfaction patient undergone elective surgery at HUCSH in2019GC.

Postop variables		Frequency n (%)	Patient satisfaction n(%)		COR.95% CI	p-value
			satisfied	dissatisfied		
sore throat after surgery	yes	39(19.5%)	16(41)	23(59)	2.623(1.283,5.362)	0.008*
	no	161(80.5%)	104 (64.6)	57(35.4)	1	
Vomiting after surgery	yes	49(24.5%)	15 (30.6)	32(69.4)	2.970(1.561,5.651)	0.001*
	no	151(75.5%)	105(69.5)	46 (30.5)	1	
shivering after surgery	yes	59(29.5%)	35(59.3)	24(40.7)	1.041(.560,1.93)	0.899
	no	141(70.5%)	85 (60.3)	56(39.7)	1	
pain after surgery	yes	54(27%)	23 (41.1)	33(58.9)	2.961(1.567,5.595)	0.001*
	no	146(73%)	97 (67.4)	47(32.6)	1	

<sup>a</sup>Number,% per cent,\* statically significant, cOR=crude odd ratio

### 3.4. Perioperative Associated factors that affect patient dissatisfaction

During bivariate analysis factors with a p-value, less than 0.25 were entered into multivariate regression. Multiple regressions revealed that type of anesthesia, duration of surgery, nausea, and vomiting, and pain after surgery significantly associated with after perioperative anesthesia dissatisfaction. Odds of the patient who took general anesthesia were 2.31(1.096, 4.142) p=0.026 more dissatisfied than regional anesthesia. Odds of the patient duration of surgery 2-3hr 0.313(0.124, 0.792) less likely dissatisfied than the duration of surgery 1hr.The odds of patient nausea and vomiting AOR=2.575(1.163, 5.698) P=0.02 more likely dissatisfied than didn't have nausea and vomiting. The odds of patient pain after surgery AOR=2.28(1.084, 4.76) more likely dissatisfied than the patient didn't have pain after surgery. (Tabel4)

Tabel4: Multivariate logistic regression analyses of association between perioperative patient dissatisfaction among adults patient undergo elective surgery, 2019G.c (n=200)

e.	category	Frequency (%)	Satisfaction Number (%)		COR 95% CI	AOR95% CI	P-value
			Satisfied	dissatisfied			
esthesia	RA	112(56)	78 (68.4)	36(31.6)	1	1	0.026
	GA	85(42.5)	42 (48.8)	44(51.2)	2.27(1.73,4.40)	2.31(1.096,4.142)	
surgery	1 hr	60(30)	40(66.7)	20(33.3)	1	1	0.14
	2-3	98(49)	62(63.3)	36(36.7)	4.47(1.92,10.41)	0.313(0.124,0.792)	
	>3 hr	42(21)	18(42.9)	24(57.1)	2.57(1.22,5.340)	0.507(0.222,1.61)	
y	Yes	39(19.5%)	16(41)	23(59)	2.623(1.283,5.36)	2.12(0.881,5.153)	0.99
	no	161(80.5%)	104(64.6)	57(35.4)	1	1	
fter surgery	Yes	49(24.5%)	15 (30.6)	32(69.4)	2.970(1.561,5.65)	2.575(1.163,5.698)	0.02
	no	151(75.5%)	105(69.5)	46 (30.5)	1	1	
surgery	Yes	54(27%)	23 (41.1)	33(58.9)	2.961(1.567,5.595)	2.28(1.084,4.76)	0.029
	no	146(73%)	97 (67.4)	47(32.6)	1	1	

<sup>n</sup>Number, %per cent, \*statically significant, cOR=crude odd ratio,AOR=adjusted odd ratio

## 4. Discussion

Patient satisfaction is individual and complex thought, involving physical, emotional, mental, social, and cultural factors. It is determined by the excellence of the delivered care and the patient's anticipations of that care. (2, 11) .in our studies a total of 200 participants were included. The magnitude of patient satisfaction was 120 (60%).

On the contrary, our study low satisfaction compared to Belihun's total 149(99.3%), Endale etal269 (98.1%), and fekadu A.etal and Bnewu et al 120 (88.3%) (10, 12-14).This difference may be a socio-demographic factor, hospital community awareness towards surgery, organizational and structural preoperative setup and preoperative anaesthesia assessment and standard perioperative management patients to decrease postoperative patient complaints and subjective and complex concept of patient satisfaction.

In this study, socio-demographic factors age, sex, education level, and residency no significantly associated with the level of patient satisfaction. But a study conducted Endale et al extreme age less than 24 and above 65 lees satisfied than middle age group, Bnewu et al female participant more satisfied than male participant and more educated people are high satisfaction level (13, 14).This variation may be the subjective and complex concept of patient satisfaction.

A study was done by Ryder hospital by Bnewu et al and Gonder hospital Endale et al patient who operated regional anesthesia were more satisfied than general anesthesia (13, 14).Similarity due to

regional anesthesia decrease nausea and vomiting, sore throat, shivering postoperative pain.

According to study done by p.s.myles,et al Australia surgical factors strong relation with patient dissatisfaction were nausea and vomiting ,postoperative pain AOR=95%, CI 4.09 ( 3.18,5.25) =95%, CI 3.94 (3.16,4.96) and other postoperative complaint AOR=95%, CI 2.04 ( 1.61,2.56) were predictors of perioperative patient dissatisfaction(6) .According to Bnewu et al Nausea and vomiting, pain, shortness of breath, and cold.In line with this research, our study showed a chance of dissatisfaction patient nausea and vomiting AOR=2.575(1.163, 5.698) P=002 more likely dissatisfied than didn't have nausea and vomiting. The odds of patient pain after surgery AOR=2.28(1.084, 4.76) more likely dissatisfied than the patient didn't have pain after surgery. The reason for the similarity is due to include the same variable for postoperative complaint and patient experience feeling compliant as natural phenomena

The main finding of this study was predictors of perioperative patient dissatisfaction were general anaesthesia, duration of surgery, nausea and vomiting and pain after surgery

## Limitation of study

The study didn't include large sample size,

## Conclusion

Compared to another study magnitude of satisfaction very low, regular study and intervention should be done every time /year in order to increase patient satisfaction

## Recommendation

Patient education about the effect of surgery and anesthesia should emphasize. Practice standards guidelines in order to decrease postoperative complaints. More emphasize should take in order to increase regional block and pain management

## Abbreviation

C/S - cesarean section; ENT - Ear-nose-throat; GA - General anesthesia; HU - Hawassa University; HUCSH - Hawassa University Comprehensive Specialized Hospital; OPD - Outpatient department; PROP – pre-operation; QA - Quality assurance; RA – Regional Anesthesia; SA – Spinal Anesthesia; WHO - World health organization

## Declarations

**Ethics approval and consent to participant**

Ethical clearance obtained from Hawass University College of medicine and health science and Official letter was written from the department of anesthesia. Written and verbal consent was obtained from each participant after a thorough explanation of the purpose.

### **Consent for publication**

Not applicable.

### **Availability of data and materials**

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request. The finding of this research will be freely available to any scientist wishing to use them for non-commercial purposes, without breaching participant confidentiality.

### **Competing interests**

The authors declare didn't have competing interests

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### **Authors' contributions**

All authors equal contribution

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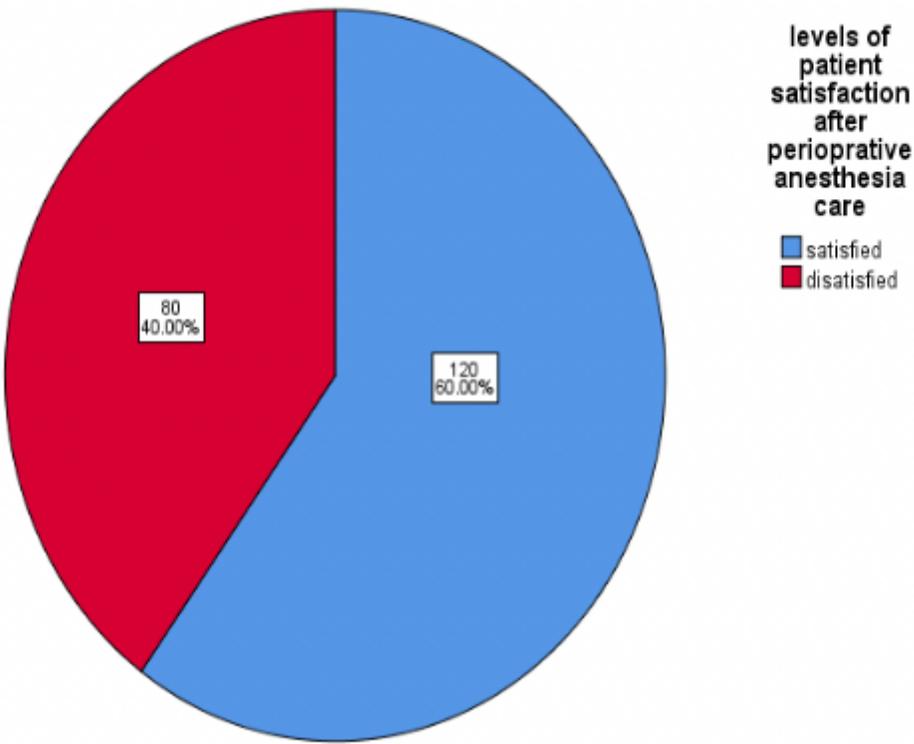
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## Figures



**Figure 1**

Magnitude of preoperative anesthesia care satisfaction patient under elective surgery from April 5 – may 5 2019 Gc

## Supplementary Files

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