

## A Prospective Study on Surgical Inpatient Satisfaction with Perioperative Anaesthetic Service in Jimma University Specialized Hospital, Jimma, South West Ethiopia

Abayneh Belihun<sup>1</sup>, Mengistu Alemu<sup>2\*</sup> and Birhanu Mengistu<sup>2</sup>

<sup>1</sup>Aksum University, College of public health and medical sciences, Aksum Ethiopia

<sup>2</sup>Jimma University, College of public health and medical sciences, Jimma Ethiopia

\*Corresponding author: Mengistu Alemu, Jimma University, College of Public health and Medical Sciences, Department of Anesthesia, Jimma, Ethiopia, Tel: +25191295731; Email: [mengistualemu@gmail.com](mailto:mengistualemu@gmail.com)

Received date: Mar 02, 2015, Accepted date: Mar 17, 2015, Published date: Mar 24, 2015

Copyright: © 2015 Belihun A, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Abstract

**Background:** Patient satisfaction is an increasingly appreciated measure of outcome for health care procedures. The purpose of this study was to evaluate Jimma university specialized hospital surgical patients satisfaction with perioperative anesthetic services and to determine which factors maximize satisfaction level through all phases of perioperative care.

**Methods:** Cross sectional prospective study was employed. Patients admitted for elective surgery in Jimma University Specialized Hospital were included in the study. Two separate questionnaires were constructed: questionnaire 1 (for patients who underwent general anesthesia) and questionnaire 2 (for patients who received regional anesthesia) covered perioperative anesthetic care.

**Results:** One hundred and eighty three patients were included. Questionnaire 1 (answered by 150 patients) included four dimensions: communication with the anesthetist, sense of cold/shivering, pain, and nausea. Questionnaire 2 (answered by 33 patients) included three dimensions: communication with the anesthetist, sense of cold/shivering, and nausea/ anxiety. Overall satisfaction rates were high.

**Conclusion:** Jimma University Specialized Hospital surgical patients reported high satisfaction with perioperative anesthesia care. Interaction between patient and anesthetists during all periods of study, and absence of shivering in regional anesthesia were significant predictors of patient satisfaction in the present Jimma University Specialized Hospital surgical population.

**Keywords:** Anesthesia; Surgery; Satisfaction

### Abbreviations

ASA: American Society of Anesthesiologists; CBE: Community Based Education; ETI: Endotracheal Intubation; GA: General Anesthesia; ICU: Intensive Care Unit; JU: Jimma University; JUSH: Jimma University Specialized Hospital; LMA: Laryngeal Mask Airway; PNB: Peripheral Nerve Block; RA: Regional Anesthesia; SA: Spinal Anesthesia

### Introduction

Satisfaction is a subjective feeling about fulfillment of wishes or the degree of congruence between expectations and accomplishment. Patient satisfaction commonly refers to how well the patient's expectations about the service of medical care have been met [1]. Service is generally any activity undertaken to meet social needs. Public service particularly refers to those activities of government institutions aimed at satisfying the needs and ensuring the wellbeing of the society as well as enforcing laws, regulations and directives of the government which should also be applicable in health care institutions.

Quality of health care has been defined as the degree to which health services increases the likelihood of desired health outcome consistent with current professional knowledge [2,3] quality of life with relevant in this context and can be measured after anesthesia and surgery by:

- (a) Objective dimensions (desired treatment outcome, functional status) and/or
- (b) Subjective dimensions such as assessment of wellbeing (affective component) and
- (c) Patient satisfaction (cognitive component) [4,5].

In defining quality of care which is greatly emphasized in today's patient-centered health care environment [6] is assessment of all three aspects i.e. the structure of institution, the processes that enable the service to be delivered, and the outcome (including the patient satisfaction) is essential to obtain reliable result. Congruently, Papa Nikolaou and Ntani, who studied 367 patients with a minimum of 3 days, stay at the hospital concluded that "patients are expected to act as consumers who carefully evaluate the aspects of care they receive" [7].

In clinical settings such as anesthesia using patient satisfaction as an indicator to monitor the quality of clinical care has potential merit. For patient, it represents an evaluation of the health care experiences based

on their own values, perception and interaction with the environment. For the service provider, patient satisfaction can reflect many facets of care such as compassionate bedside skills, efficient attention to needs, participation in decision making, adequate communication and information [8] which is not easily examined in any other manner.

Improving the poor quality of care delivered to patients is one of the strategies to reduce the burden of diseases and plays a significant role in attaining the millennium development goals (MDGs). This intention of the government was reflected in the 1993 health policy and the health sector development plans of the country. In such efforts towards improving quality of health care, patient satisfaction is integral component of health services provided to the population [9-17].

Recently, recording of patient satisfaction has been considered by the medical community as an important parameter in the analysis of administered health care services [18,19]. It is considered to be decisive for two reasons: first, it may enable the tracing and correction of health care system impotencies and problems; and second, this approach can meet patients' desires and expectations, resolve their speculations, and consequently, increase their trust and cooperation in the national health care system policy and practice [20].

Traditionally, the perceived role of the anaesthetist has been restricted to the immediate preoperative and intraoperative periods [21] whereas anaesthetists are now considered to have greater involvement in preoperative preparation and postoperative care [22,23]. This allows earlier detection and treatment of postoperative complications.

During the preanesthetic visit, information giving, relieving of patient concerns, and participation in decision making proved to be integral parts in patient's satisfaction. Interaction with the anaesthetist during the intraoperative and immediate postoperative period was also revealed as the most important element of patient satisfaction for all patients, regardless of the type of anaesthesia performed [24].

Capuzzo et al had also attempted to identify items of value for surgical patients regarding satisfaction with anaesthesia in an Italian hospital and concluded that "kindness/regard of caregivers" along with "information given by the anaesthetist" and "feeling safe" was good indicators for predicting patient satisfaction. They also concluded that surgical patient's value emotional and relational factors most in order to be satisfied [25].

Similarly, Jjala et al ran a study to investigate among other issues, patient satisfaction with perioperative care in individuals having surgery in a university hospital. One of their conclusions was that domains such as information provision and communication between patients and health care providers should be included in a questionnaire for the assessment of patient satisfaction. Another conclusion was that patients were more satisfied if they were provided information before they underwent regional anesthesia [26].

There are few things anaesthetists do for patients more fundamental to their quality of life than relieving pain. In the SIAARTI Recommendations of 2010 for acute postoperative pain treatment by Savoia et al, it is noted that "analgesia is a fundamental right of the patients" and that "treatment of postoperative pain represents a high-priority institutional objective" [27]. However, Most acute pain services are nurse-based, anaesthetist supervised [28,29].

It was found that patient satisfaction with anesthesia was very high and several identified factors are associated with dissatisfaction that

may be preventable and better treated. These aspects should be achievable, despite the current era of cost containment as easily visible from a wealth of literatures.

Finally, to have the patient satisfied, health care providers should work towards improving the communication skill of their professionals along with having technically competent workers which could possibly affect the perception of the patient about all of the variables that were identified as predictors of patient satisfaction in this study. Health care professionals are also expected to control their patients' expectations and understanding of treatment to provide the highest level of satisfaction [30]. In fact to improve patient satisfaction health care professionals would be advised to pay more attention to patient understanding and expectations even at the expense of improving patient outcome. The close relationship between patient expectations and adequate informed consent cannot be ignored [31].

The findings of the study may in general help the health management and in particular those looking after the health institutions in the hospital to understand the extent of the problem in the hospital.

The study will also enhance the capacity to look for possible alternative solutions to health service delivery in addition to contributing to increase in the knowledge and awareness of the problem areas by concerned bodies including the hospital staffs.

In addition, hopefully, this research will be used as a footstep for next studies to be done on similar problems.

## Methods and Materials

### Study area and period

Jimma University Specialized Hospital (JUSH) is one of the oldest public hospitals in the country. Geographically, it is located in Oromia region, Jimma city 352 km southwest of Addis Ababa, the capital city of Ethiopia. It provides services for approximately 9000 inpatient and 80000 outpatient attendances a year having the catchment population of about 15,000 million people with very wide catchment area that covers 17500 km. The surgery department is one of the four major departments and it has three wards with separate female and male wards in each, two OPDs, one referral clinic, and one operation room which is comprised of two major operation tables, one minor and one orthopedic operation table. The study had been conducted from April 10 to May 10, 2013.

### Study design

Non-blinded Cross sectional study was employed.

### Population

#### Source population

Jimma University Specialized Hospital Surgical inpatients that had undergone operation from April 10 to May 10, 2013 were used as a source population.

#### Study population

Surgical inpatients who had been admitted post-surgery for at least one day during the study period were taken as a study population.

## Exclusion Criteria

1. Very seriously ill clients who were not have somebody to accompany them because of the difficulty of interviewing such cases (getting the consent, lack tolerance of the pain or illness).
2. Children who are under 18 who were alone. This is because children below this age cannot provide information independently.
3. Patient refusal
4. Cognitive dysfunction or any other inability to finish the interview
5. Pregnancy – because they complain not because of under treatment but because of the physiologic changes during pregnancy and,
6. Postoperative admission in the intensive care unit was also excluded.

## Sample size and sampling Techniques

Cross sectional study was employed and all elective surgical inpatients that had undergone surgery during the study period that fulfills the inclusion criteria were included in the study.

## Data collection methods and collectors

Questionnaire including certain objective and subjective terms which the patient can answer without getting unduly stressed up had been filled up via a personal interview and was conducted by third year anesthesia students who were not involved in anesthesia care. Standardized and structured questionnaire had been developed for the purpose of data collection after reviewing relevant literatures and assessing the Internet sources. The questionnaire is designed to obtain information on socio-demographic characteristics of respondents and their satisfaction level with the different components of the anaesthesia services.

Rubin and Ware's model which is designed specifically to measure the satisfaction level of surgical patients by surveying 6 dimensions of service including an overall evaluation, discomfort during the operation, postoperative discomfort, and professional skill of the caregiver, personal manner of the hospital staff, and explanation of condition by the caregiver was used in developing questionnaire.

## Data Quality Assurance

The quality of data was ensured through training of data collectors. The completed questionnaire was submitted and reviewed daily to avoid loss of data. Close supervision and daily information exchange including by telephone was used as a means to correct problems during the course of the data collection. Consent for the survey was obtained. Data consistency and completeness was made throughout the data collection, data entry and analysis. To make it more qualified the patients were asked to rate their satisfactions with anesthesia care only not their entire hospitalization episode for which a variety of other factors may be important.

## Data processing and analysis

After data collection the data was tallied manually using tally sheet. The principal investigator had been performing data entry and cleaning. Frequency distribution, percentages and Chi squared ( $\chi^2$ ) test to detect associations for selected variables were calculated as

appropriate. Finally, the result was compared with national and international data.

## Operational Definition

**Assessment-** Is the process by which the characteristics and needs of clients, groups or situations are evaluated or determined so that they can be addressed. The assessment forms the basis of a plan for service or actions.

**Client/Customer/Consumer-** "An individual who uses a hospital or health care service".

**Hospital-** Can be defined as an organized effort to provide a specific set of medical services, usually physically located in one or several buildings, and related to specialized care (diagnosis and treatment) and care (as opposed to the primary care level) with the input of health professionals, technologies and facilities.

**Service-** Any activity undertaken to meet the patient needs.

**Quality-** User based quality is defined as "fitness for use", which means the consumer's perception of quality. It is also defined as meeting the desires and expectations of customers".

**Satisfaction-** Meeting the perceived needs and the expectations of the clients in relation to factors related to the health care provider and Amenities.

**Dissatisfaction-** When needs and expectations of patients diverge from accomplishment.

**Ethical Consideration-** The study was conducted after obtaining ethical approval from Jimma University CBE coordinating office. The purpose of the study was explained to the patients under the study and verbal informed consent was obtained. Any response from the respondent was kept confidential. The patients were informed that the care to be given would not be compromised in any way because of their response. Name and other identifying information were not used in the study.

## Results

One hundred ninety three consecutive patients over a 1-month period were originally enrolled in the study. Nine refused to fill out the questionnaires and one failed to complete them. Baseline characteristics of the final 183 participants in the study (125 males and 58 females).

Among the study population, majority (71.58%) had undergone surgery under general anesthesia, while GA with LMA/face mask accounts the least percentage (10.38%). Most of the study populations were classified under ASA PS-I (92.89%).

From the 183 patients above, 150 patients received general anesthesia and 33 received regional anesthesia. In patients who had undergone surgery under general anesthesia, satisfaction rates were generally high (96.97%) and 84.6% of them would definitely/probably like to receive the same anesthetic regimen again in the future, and 6.66 described the anesthesia procedure as satisfying or very satisfying (92.67).

Congruently, in 33 patients who had received regional anesthesia, satisfaction rates were generally high (96.97%). According to questionnaire Q2, 84.84% of patients with regional anesthesia would definitely/probably like to receive the same anesthetic regimen again

in the future, and 12.12% described the anesthesia procedure as satisfying or very satisfying (84.85%).

Nearly all patients (99.3) were satisfied with general anesthesia out of which 72% is male and 27.3% is female. Similarly the overall satisfaction in patients who received regional anesthesia is high (96.96%) and majority of these are male (51.51%). Level of education has statistically significant correlation with level of satisfaction.

Preoperative dissatisfying events have no association with level of satisfaction. However intraoperative events have very significant association with level of satisfaction while postoperative dissatisfying events have very highly significant association with level of satisfaction in JUSH surgical inpatients that had undergone surgery under General Anesthesia.

Intraoperative events have very highly significant association (p-value of 0.0001) with level of satisfaction while preoperative events have no association with level of satisfaction in JUSH surgical inpatients that had undergone surgery under regional anesthesia.

Despite the scored high overall satisfaction 24 still complain time delay and the least; three responded disturbing noise during surgery. Lack of privacy and pain during surgery are also among the observed dissatisfying events.

## Discussion

One hundred ninety three consecutive patients over a 1-month period were originally enrolled in the study. Nine refused to fill out the questionnaires and one failed to complete them. From this the Response rate calculated is 94.82%. Baseline characteristics of the final 183 participants in the study (125 males and 58 females) are shown in Table 1.

Characteristics	Category	Number	Percentage
Sex	Male	125	68.3
	Female	58	31.7
Payment Status	Paying	15	8.19
	Free	168	91.81
Marital Status	Single	27	14.75
	Married	140	76.5
	Divorced	11	6.01
	Widowed	5	2.73
Educational Level	Illiterate	71	38.79
	Some Primary School	31	16.93

	Completed Primary	28	15.3
	Some Secondary	23	12.56
	Completed Secondary	14	7.65
	More than Secondary	16	8.74

**Table 1:** Sociodemographic characteristics of JUSH surgical inpatients that had undergone surgery, April 2013.

Characteristics	Category	Frequency	Percentage
ASA PS Classification	I	170	92.89
	II	13	7.11
Comorbidities	Asthma	4	2.18
	Hypertension	5	2.73
	Diabetes	4	2.18
	Psychiatric	0	0
	Other	2	1.09
Type of surgery	Abdominal	97	53
	Orthopedic	51	27.86
	Other	35	19.12
Type of Anesthesia	GA+ETI	131	71.58
	GA+LMA/Facemask	19	10.38
	Spinal Anesthesia	33	18.03
	Peripheral Nerve Block	0	0

**Table 2:** Distribution of physical, medical and surgical characteristics in JUSH surgical inpatients who had undergone surgery, April, 2013.

One hundred and eighty three patients were included in Table 2. Table 3 (answered by 150 patients) included dimensions: communication with the anesthetist, sense of cold/shivering, pain and nausea. Table 4 (answered by 33 patients) included dimensions: communication with the anesthetist, sense of cold/shivering and nausea/anxiety.

Questionnaire item	Response	Frequency	Percentage
Over all, how would you evaluate the type of anesthesia you received?	Very satisfying	139	92.67
	Satisfying	10	6.66
	Neutral	0	0
	Dissatisfying	1	0.67

	Very dissatisfying	0	0
Could you perceive noise or voices during surgery?	Yes	13	8.65
	No	147	91.35
Did you feel pain immediately after awaking from anesthesia?	Yes	6	4
	No	144	96
Did you have dyspnea immediately after awaking from anesthesia?	Yes	48	32
	No	102	68
Did you have shivering immediately after awaking from anesthesia?	Yes	25	16.67
	No	125	83.33
Did you feel cold immediately after awaking from anesthesia?	Yes	47	31.34
	No	103	68.66
Did you have nausea immediately after awaking from anesthesia?	Yes	136	90.67
	No	14	9.33
Did you vomit immediately after awaking from anesthesia?	Yes	3	2
	No	147	98
Did you feel that the anesthetists did the best they could for you perioperatively?	Yes	150	100
	No	0	0
Did you experience disturbing events (noise, intense light, invasive procedures, or delay of procedures) did you experience perioperatively?	Yes	17	11.34
	No	133	88.66
During the preoperative evaluation visit, did you have enough time to discuss your questions concerning anesthesia with the anesthetist?	Yes	139	92.67
	No	11	7.33
During the preoperative evaluation visit, did the anesthetist adequately address your questions?	Yes	139	92.67
	No	11	7.33
During the preoperative evaluation visit, were you given the opportunity to express your opinion about the type of anesthesia to be administered?	Yes	137	91.33
	No	13	8.67
Should you undergo the same operation once again, would you rather have the same anesthetic procedure?	Yes	127	84.6
	No	23	13.4

**Table 3:** Satisfaction level and points of dissatisfaction of JUSH surgical inpatients that had undergone surgery under general anaesthesia, April, 2013.

Questionnaire Item	Response	Frequency	Percentage
Overall, how would you evaluate the type of anesthesia you received?	Very SATISFYING	28	84.85
	SATISFYING	4	12.12
	Neutral		
	DISSATISFYING	1	3.03
	Very DISSATISFYING	0	0

  

Did you feel pain during surgery?	Yes	0	0
	No	33	100
Did you have shivering during surgery?	Yes	28	84.85
	No	5	15.15
Did you feel cold during surgery?	Yes	30	90
	No	3	10

Did you have nausea during surgery?	Yes	23	70
	No	10	30
Did you vomit during surgery?	Yes	2	6
	No	31	94
Did you feel safe during surgery?	Yes	21	63.6
	No	12	37.4
Did you feel anxious during surgery?	Yes	7	21.2
	No	26	78.8
Did you feel that the anesthetists did the best they could for you perioperatively?	Yes	31	94
	No	2	6
Did you experience disturbing events (noise, intense light or delay of procedures) preoperatively?	Yes	13	60.6
	No	20	39.4
During the preoperative evaluation visit, did you have enough time to discuss your questions concerning anesthesia with the anesthetist?	Yes	24	72.7
	No	9	27.3
During the preoperative evaluation visit, did the anesthetist adequately address your questions?	Yes	23	69.7
	No	10	30.3

During the preoperative evaluation visit, were you given the opportunity to express your opinion about the type of anesthesia to be administered?	Yes	26	78.8
	No	7	21.2
Should you undergo the same operation once again, would you like to have the same anesthetic procedure?	Yes	28	84.84
	No	5	15.16

**Table 4:** Satisfaction level and dissatisfaction points in JUSH surgical inpatients who had undergone surgery under Regional anaesthesia, June 2013.

Surgical patient overall satisfaction is high despite enormous dissatisfaction events as a wealth of literature shows and similarly, JUSH surgical patients report high satisfaction with perioperative anesthesia care. One explanation for the high overall satisfaction levels observed in this study may be the continuous anesthetic care in patient management that was provided throughout the entire perioperative period, including preoperative assessment and close intraoperative and immediate postoperative care Table 5.

Variables	Category	General Anesthesia				Regional anesthesia						
		Satisfied		Dissatisfied		Remark		Satisfied		Dissatisfied		Remark
		No	%	No	%	No	%	No	%	No	%	
Sex	Male	108	72	0	0	p-value=0.63		17	51.51	0	0	p-value=1
	Female	41	27.3	1	6.67	x <sup>2</sup> =0.24	15	45.45	1	3.03	x <sup>2</sup> =0	
Educational status	Illiterate	50	33.33	0	0	p-value=0.0407		21	63.64	0	0	p-value<0001
	Some 10	27	18	0	0	x <sup>2</sup> =4.19	4	12.12	0	0	x <sup>2</sup> =33	
	Comp. 10	23	15.33	0	0		5	15.14	0	0		
	Some 20	22	14.66	0	0		0	0	1	3.03		
	>20	27	18	1	0.66		2	6.06	0	0		

**Table 5:** Description of level of satisfaction in relation to socio-demographic characteristics in JUSH surgical inpatient that had undergone surgery, April, 2013.

Contrarily, the overall satisfaction scores with anesthesia care are also followed by low recorded dissatisfaction parameters (no paradox can be addressed in this study). 40 out of the 183 patients mentioned some dissatisfaction points. Time delay in the sequence of processing

(from ward to operating theater, prolonged preparation time, and from transfer area until discharge to ward) was recorded in 24 patients, lack of privacy was recorded in 9, pain during invasive

interventions recorded in 4, and disturbing noise preoperatively was recorded in 3.

Anesthetist-to-patient interaction during the entire perioperative period and absence of shivering during regional anesthesia are significant predictors of JUSH surgical patient satisfaction. Contrary to previous studies, we were able to explore that level of education has statistically significant correlation with level of satisfaction in both regional and general anesthesia (p-value is <0.05) while sex has no association with level of satisfaction. (p-value>0.05). Wu et al, in a 2001 review, found that advanced age and female sex consistently correlate with increased levels of satisfaction may be due to the fact that these groups receive more information or have more positive interactions with their health care providers. In another review, Thiedke stated: “The literature appears mixed on the importance of patients’ demographic and social factors in determining satisfaction. Nevertheless the literature does shed some light on how particular demographic factors affect patient satisfaction.” She also reports that studies on the effects of biological gender on patient satisfaction are not consistent, with some showing that females tend to be less satisfied and others showing the opposite conclusion in Table 6. She also notes that “most studies have found that less education tend to be less satisfied with their health care.”

Dimension	Questionnaire Item	Yes		No		Remark
		No.	%	No.	%	
Preoperative Events	Did you have enough time to discuss your questions concerning anesthesia with the anesthetist?	139	92.67	11	7.33	
	Did the anesthetist adequately address your questions?	139	62.67	11	7.33	p-value=0.8
	Did you participate in decision making about the type of anesthesia to be administered?	137	91.33	13	8.67	x <sup>2</sup> =0.25
Intraop Event	Could you perceive noise or voices during surgery?	13	8.65	147	91.35	p-value<0.001 x <sup>2</sup> =infinite
Postoperative Events	Did you feel pain immediately after awaking from anesthesia?	6	4	144	96	
	Did you have dyspnea immediately after awaking from anesthesia?	48	32	102	68	p-value<.0001
	Did you have shivering immediately after awaking	25	16.67	125	83.33	X <sup>2</sup> = 386.89

	from anesthesia?					
	Did you have nausea immediately after awaking from anesthesia?	136	90.67	14	9.33	
	Did you vomit immediately after awaking from anesthesia?	3	2	147	98	

**Table 6:** Description of level of satisfaction in relation perioperative dissatisfying events in JUSH surgical inpatient that had undergone surgery under general anesthesia, April, 2013.

In this study interaction during the preanesthetic visit, information giving, relieving of patient concerns, and participation in decision making proved to be integral parts in patients’ satisfaction Table 7. Interaction with the anesthetist during the intraoperative and immediate postoperative period was also revealed as the most important element of patient satisfaction for all patients, regardless of the type of anesthesia performed. Previous well-validated studies show results similar to this. Capuzzo et al concluded that “kindness/regard of caregivers” along with “information given by the anesthetist” and “feeling safe” was good indicators for predicting patient satisfaction [25].

Dimension	Questionnaire item	YES		NO		Remark
		No	%	No	%	
Preoperative Events	Did you have enough time to discuss your questions concerning anesthesia with the anesthetist?	24	72.7	9	27.3	x <sup>2</sup> =0.73
	Did the anesthetist adequately address your questions?	23	69.7	10	30.3	p-value=0.7
	Did you participate in decision making about the type of anesthesia to be administered?	26	78.8	7	21.2	
	Did you feel pain during surgery?	0	0	33	100	x <sup>2</sup> =81.2
Intraoperative Events	Did you have shivering during surgery	28	84.9	5	15.1	p-value<.0001
	Did you have nausea during surgery?	23	70	10	30	
	Did you vomit during surgery?	2	6	31	94	

Did you feel safe during surgery?	21	63.6	12	37.4	
-----------------------------------	----	------	----	------	--

**Table 7:** Dimension specific description of level of satisfaction in relation perioperative dissatisfying events in JUSH surgical inpatient, who had undergone surgery under Regional anesthesia, April, 2013.

Of patients who underwent regional anesthesia, shivering seems to be an intense symptom that strongly affects patients' emotions. This can be an important conclusion since data from regional anesthesia are limited, as Chanthong et al reported in their review of questionnaires measuring patient satisfaction in ambulatory anesthesia [32].

Intraoperative events have very highly significant association (p-value of 0.0001) with level of satisfaction while preoperative events have no association with level of satisfaction in JUSH surgical inpatients who had undergone surgery under regional anesthesia while Preoperative dissatisfying events have no association with level of satisfaction. However intraoperative events have very significant association with level of satisfaction while postoperative dissatisfying events have very highly significant association with level of satisfaction in JUSH surgical inpatients that had undergone surgery under General Anesthesia shown in Table 8.

Dissatisfying events	Frequency	
	Male	Female
Time delay in the sequence of processing (from ward to operating theater, prolonged preparation time, and from transfer area until discharge to ward).	19	5
pain during invasive interventions	3	1
lack of privacy	6	3
disturbing noise preoperatively	2	1

**Table 8:** Reported parameters of dissatisfaction in JUSH surgical inpatients, who had undergone surgery during the study period.

It should be pointed out that, in this study, anesthetists' behavior during the perioperative phases was also a significant predictor for patient satisfaction. It is in accordance with the denotation of anesthesia as "perioperative medicine" that our obligation to ensure patient's wellbeing does not end in the operating theater. It is a continuous process that expands beyond strict operation time. So it can be concluded that human interaction holds a leading role in all phases of perioperative care.

### Conclusions and Recommendations

JUSH surgical patients report high satisfaction with perioperative anesthesia care. The present study revealed that anesthetist-to-patient interaction during the entire perioperative period, absence of shivering during regional anesthesia, and adequate postoperative pain control in the ward are significant predictors of patient satisfaction. On the other hand, time delay in the sequence of processing, pain during invasive interventions, and disturbing noise preoperatively are reported as parameters of dissatisfaction. However, further studies from other JUSH anesthesia department should be performed to investigate a larger sample. The institution administration body responsible anesthetists should solve dissatisfying factors and enhance factors maximizing satisfaction to arrive at the final destination of client satisfaction and quality of health care delivery.

### Acknowledgments

We are thankful to Jimma university specialized hospital surgical ward staffs for helping us during data collection.

### References

- Young GJ, Meterko M, Desai KR (2000) Patient satisfaction with hospital care: effects of demographic and institutional characteristics *Med Care* 38: 325-334.
- Lohr KN, Donaldson MS, Harris-Wehling J (1992) Medicare: a strategy for quality assurance, *Quality of care in a changing health care environment. QRB Qual Rev Bull* 18: 120-126.
- Donabedian A (1988) The quality of care. How can it be assessed? *JAMA* 260: 1743-1748.
- Gill TM, Feinstein AR (1994) A critical appraisal of the quality of quality-of-life measurements. *JAMA* 272: 619-626.
- Abbey A, Andrews FM (1984) Modeling the psychosocial determinants of life quality. *Soc Indicators Res* 16: 1-34.
- Berwick DM (1989) Continuous improvement as an ideal in health care. *N Engl J Med* 320: 53-56.
- Papanikolaou V, Ntani S (2008) Addressing the paradoxes of satisfaction with hospital care. *Int J Health Care Qual Assur* 21: 548-561.
- Hilditch WG, Asbury AJ, Jack E, McGrane S (2003) Validation of a pre-anaesthetic screening questionnaire. *Anaesthesia* 58: 874-877.
- John Hopkins University (2003) Defining the Patient-Physician Relationship for the 21st Century. 3rd Annual Disease Management.
- Wisconsin A (1999) Improving Interpersonal Communication between Healthcare Providers and Clients: Reference Manual. Quality Assurance Project.
- Myriam D (2003) Doctor-patient communication in general practice: An observational study in six European countries.
- Travaline JM, Ruchinskas R, D'Alonzo GE Jr (2005) Patient-physician communication: why and how. *J Am Osteopath Assoc* 105: 13-18.
- Margolis SA, Al-Marzouq S, Revel T, Reed RL (2003) Patient satisfaction with primary health care services in the United Arab Emirates. *Int J Qual Health Care* 15: 241-249.
- Bensing JM, Fred Tromp, Sandra van Dulmen, Atie van den Brink-Muinen, William Verheij, et al. (2006) Shifts in doctor-patient



- communication between 1986 and 2002: a study of videotaped General Practice consultations with hypertension patients. *BMC Fam Pract* 7: 62.
15. Sharon S, Tanya A, Larry S (2006) Patient-Centered Care for Underserved Populations: Definition and Best Practices. Econom Social Research Institute.
  16. Rubio RN, Pearson HC, Clark AA, Breikopf CR (2007) Satisfaction with care among low-income female outpatients. *Psychol Health Med* 12: 334-345.
  17. The Federal Democratic Republic of Ethiopia (2002) Health Sector Develop Programme II. Ministry of Health, Addis Ababa.
  18. Myles PS, Williams DL, Hendrata M, Anderson H, Weeks AM (2000) Patient satisfaction after anaesthesia and surgery: results of a prospective survey of 10,811 patients. *Br J Anaesth* 84: 6-10.
  19. Heidegger T, Saal D, Nuebling M (2006) Patient satisfaction with anaesthesia care: what is patient satisfaction, how should it be measured, and what is the evidence for assuring high patient satisfaction? *Best Pract Res Clin Anaesthesiol* 20: 331-346.
  20. Capuzzo M, Landi F, Bassani A, Grassi L, Volta CA, et al. (2005) Emotional and interpersonal factors are most important for patient satisfaction with anaesthesia. *Acta Anaesthesiol Scand* 49: 735-742.
  21. Swinhoe CF, Groves ER (1994) Patients' knowledge of anaesthetic practice and the rôle of anaesthetists. *Anaesthesia* 49: 165-166.
  22. Klock PA, Roizen MF (1996) More or better--educating the patient about the anesthesiologist's role as perioperative physician. *Anesth Analg* 83: 671-672.
  23. Lee A, Lum ME (1996) Measuring anaesthetic outcomes. *Anaesth Intensive Care* 24: 685-693.
  24. Kouki P, Matsota P, Christodoulaki K, Kompoti M, Loizou M, et al. (2012) Greek surgical patients' satisfaction related to perioperative anesthetic services in an academic institute. *Patient Prefer Adherence* 6: 569-578.
  25. Capuzzo M, Landi F, Bassani A, Grassi L, Volta CA, et al. (2005) Emotional and interpersonal factors are most important for patient satisfaction with anaesthesia. *Acta Anaesthesiol Scand* 49: 735-742.
  26. Myles PS, Williams DL, Hendrata M, Anderson H, Weeks AM (2000) Patient satisfaction after anaesthesia and surgery: results of a prospective survey of 10,811 patients. *Br J Anaesth* 84: 6-10.
  27. Savoia G, Alampi D, Amantea B, Ambrosio F, Arcioni R, et al. (2010) Postoperative pain treatment SIAARTI Recommendations 2010. Short version. *Minerva Anesthesiol* 76: 657-667.
  28. Shapiro A, Zohar E, Kantor M, Memrod J, Fredman B (2004) Establishing a nurse-based, anesthesiologist-supervised inpatient acute pain service: experience of 4,617 patients. *J Clin Anesth* 16: 415-420.
  29. Leykin Y, Pellis T, Ambrosio C, Zanette G, Malisano A, et al. (2007) A recovery room-based acute pain service. *Minerva Anesthesiol* 73: 201-206.
  30. Yucelt U (1994) An investigation of causes of patient satisfaction/dissatisfaction with physician services. *Health Mark Q* 12: 11-28.
  31. Tielsch JM, Steinberg EP, Cassard SD, et al. (1995) Preoperative functional expectations and postoperative outcomes among patients undergoing first eye cataract surgery. *Arch Ophthalmol* 113: 1312-1318.
  32. Tong D, Chung F, Wong D (1997) Predictive factors in global and anesthesia satisfaction in ambulatory surgical patients. *Anesthesiology* 87: 856-864.