



## MEASURING PATIENT SATISFACTION WITH ANESTHESIA CARE IN ACADEMIC TERTIARY HOSPITAL

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### Abstract:

**Introduction:** Patient satisfaction in healthcare setting it is like a balance between pre care expectations, and after care experience. In our study we sought to analyze the patient's satisfaction pre- and post-operative as well as overall impression in Academic Tertiary Hospital.

**Methods:** Cross Sectional Study, the survey was undertaken among the patient's undergoing surgery in Qassim University Medical City. The questionnaire built by the research team

**Results:** The response rate of the study was 98.1% and with total of 411 agreed to participate out of 419 patients received the questioner. As Overall patient satisfaction toward Anesthesia Experience in our hospital was 95% with surprising result showed that the male overall satisfaction was 99% in comparing to females 89% and significant ( $P < 0.001$ ).

**Conclusion:** The paranesthesia orientation and discussion led better understanding to the patients about the expected postoperative expectations and management.

### Introduction:

Since 1930 Shewhart, utilizing a good skill grown while at Bell Laboratories, providing a scientific method to quality control (1). One of the main aspects of this quality in healthcare is patients' experience in the operation and anesthesia care (2).

Patient satisfaction and experience towards healthcare conserved one of the tops of concentration today for generality of the health care organizations (3), The customer-satisfaction in the literature focused on the satisfaction through the lens of a customer's subjective decision, which relates to their expectation and a definite understanding of the products or services (4).

1988 (Before 35 years) the patient satisfaction defined as the degree of meeting the patients' expectations and considered one of the most important quality indicators in the healthcare organizations (5).

Now a days, the patient satisfaction measured in taken in the consideration as emergency need to be measured for anesthesia care and urged anesthesiologists to figure out a reliable assessment methodology (6), another editorials confirming that patients' satisfaction has recognized as a main target for most of the studies and non-separable gear needed for the integrity of health service quality (7, 8). Patient satisfaction in anesthesia Pateints given an informative information that the type of anesthesia and postoperative complications were the most affecting factors on patient experience (2). In the same situation, there is a great tool for measuring patient satisfaction called "Te Picker inpatient survey" (9).

In our study we sought to analyze the patient's satisfaction pre- and post-operative as well as overall impression in Academic Tertiary Hospital.

### **Methods:**

#### **Study design:**

Cross Sectional Study using a questioner

#### **Study setting and site:**

The survey was undertaken among the patient's undergoing surgery in Qassim University Medical City.

#### **Research instrument:**

The team designed a cross-sectional survey study using a questionnaire, distributed as online form by research team. The questionnaire contains questions categorized into four domains, including demographics characteristic, preoperative clinic, postoperative Experience and management, and overall impression about anesthesia experience.

#### **Testing reliability**

We utilized the greatest and most important reliability test, Cronbach's alpha (10) to measure the internal consistency of the questionnaire on the 50 patients which not included in the main analysis (value >0.70 suggests adequate internal consistency).

#### **Data collection**

Questionnaire was directed by research team in the medical city. The survey included a cover letter and a questionnaire with Arabic and English versions. The survey has been sent to each patient to read and decide whether to participate or not by click on the approval/disapproval option at the begging of the questionnaire after reading the cover letter. If agreed the patient confirming by click the option "Yes, I agree to participate, I authorize the research team to use my answers in the analysis and publish the research" otherwise patient will use option " I Do Not Agree".

#### **Participants**

In our study we aimed to recruit all patients underwent anesthesia with no exclusion on type of anesthesia or surgery, race, gender. We have excluded pediatrics patients and mental health Pateints.

#### **Ethical approval**

This study strictly followed the Declaration of Helsinki and was approved by the committees of research ethics, Deanship of Scientific Research at Qassim University. All investigators completed the Bioethics certificate from The National Committee of Bioethics at King Abdulaziz City for Science and Technology. Informed consent was obtained from each participant and participants were able to approve or disapprove of participation.

No identifying information of any participant was gained during the questionnaire, and all data were only used for statistical analysis. The response of study participants was kept confidentially in special folder on the Corresponding author computer and protected by unique code.

### Data analysis

All data will be entered and analyzed using SPSS V28© (IBM Corp., Armonk, NY, USA). Categorical variables were expressed as frequencies and percentages, while continuous variables were presented as means  $\pm$  standard deviations (SDs). The chi-squared test utilized to evaluate the demographic. A p-value  $\leq 0.05$  was considered to be statistically significant.

Chi-square test was used to measure the significance of difference between different groups. We have measured satisfaction score with maximum score of 5 for each question. For easy interpretation of patients' satisfaction, "Extremely dissatisfied," "Dissatisfied," and "Slightly dissatisfied" were merged into "Dissatisfied" and the others as "Satisfied." Similarly, "Strongly disagree" and "Disagree" were merged into "Disagree" while "Strongly agree" and "Agree" were merged into "Agree." Descriptive and frequency statistics, as well as regression analysis, were used to assess patients' satisfaction.

### Results:

The response rate of the study was 98.1% and with total of 411 agreed to participate out of 419 patients received the questioner.

A 411-participants agreed to participate in the study; the males were the majority of the participant 249 (60.6%) and the females were 162 (39.4%), the age was categorized as; 18-30 years, 30-40 years, 30-40 years, 41-50 years, 51-60 years, and more than 60 (132 (32.1%)), (108 (26.3)), (57 (13.9)), (57 (13.9)), (57 (13.9)) respectively. Basic characteristics of all patients included in the survey shown in table 1.

Variable		Number	Percentage
Gender	Male	249	60.6
	Female	162	39.4
Age	18-30 years	132	32.1
	30-40 years	108	26.3
	41-50 years	57	13.9
	51-60 years	57	13.9
	more than 60	57	13.9
Marital Status	Single	120	29.2
	Married	279	67.9
	Divorced	3	.7
	Widow	9	2.2
Education	Primary School	36	8.8
	Secondary School	51	12.4
	University	252	61.3
	Higher Education	72	17.5
Employment	Student	75	18.2
	Governmental Sector	204	49.6
	Private Sector	18	4.4
	Business Owner	18	4.4
	Unemployed	96	23.4

Most of the participants were underwent to general anesthesia 225 (54.7%) and the main of the them don't have any previous experience before 159 (38.7%). (Table 2).

Variable		Number	Percentage
Previous Anesthesia Experience	First Time	159	38.7
	Once Previously	108	26.3
	Twice Previously	69	16.8
	More than two times previously	75	18.2
Type Anesthesia	General	225	54.7
	Local	102	24.8
	Spinal	21	5.1
	Conscious Sedation	63	15.3

Majority of patients reported a positive experience about the anesthesia in the hospital, interestingly; the highest satisfaction of their experience was about the Good Pain Management Postoperative 399 (97.1%) as well as the postoperative Vomiting 375 (91.2) stated they did not complain of Postoperative or Vomiting. (Table 3).

Variable		Number	Percentage (%)
Memorizing any event during Anesthesia	Not Aware	333	81.0
	Aware	78	19.0
Pain While under Anesthesia	Yes	45	10.9
	No	366	89.1
Expected Risk	No Risk	90	21.9
	Risky	321	78.1
Good Pain Management Postoperative	Yes	399	97.1
	No	12	2.9
Vomiting	Yes	36	8.8
	No	375	91.2

Proudly; the results of the satisfaction to Anesthesiologist were high satisfaction while the highest were about Anesthesiologist technical skills 384 out of 411 (93.4%) reported the Skillful Anesthesiologists, as well as the Anesthesiologists showing friendly with the Patients 387(94.2%) on other hand the time consumed in the clinic pre-anesthesia reflect positive impact on the patients' satisfaction 384(93.4).(Table 4)

Variable		Number	Percentage
Meeting Patients' Concerns	Agree	357	13.1
	Disagree	54	86.9
Given a Clear Message	Agree	372	90.5
	Disagree	39	9.5
Trust	Confident	369	89.8
	Unconfident	42	10.2
Stress	Relaxed	261	63.5
	Stress	150	36.5
Recommended Anesthesiologist	Yes	366	89.1
	No	45	10.9
Information Amount	Enough	309	75.8
	Not Enough	102	24.8
Anesthesiologist Kindness	Gentle	363	88.3
	Not Gentle	48	11.7
Anesthesiologist technical skills	Skillful	384	93.4
	Unskillful	27	6.6
How friendly was the Anesthesiologist	Friendly	387	94.2
	Un-Friendly	24	5.8
Anesthesiologist Clinic Visit	Long	384	93.4
	Short	27	6.6

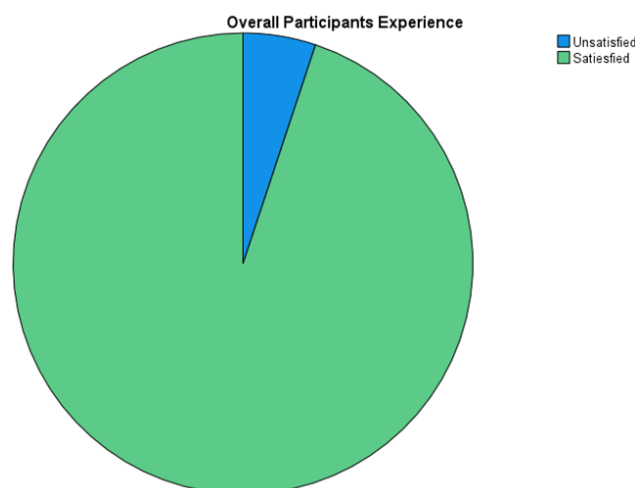
Surprising results shown in Table 5 about the participants' those Expected Risk 85.2% of the female no expected risks on other hand the males 73.5% not expected risks with statically significant  $P=0.005$

Variable		Male N(%)	Female N(%)	P value
Memorizing any event during Anesthesia	Aware	51(20.5)	27(16.7)	0.335
	Not Aware	198(79.5)	135(83.3)	
Pain While under Anesthesia	Pain	27(10.8)	18(11.1)	0.932
	No Pain	222(89.2)	144(88.9)	
Expected Risk	Risky	66(26.5)	24(14.8)	0.005
	Not Risky	183(73.5)	138(85.2)	
Pain Management Postoperative	Good	243(97.6)	156(96.3)	0.446
	Bad	6(2.4)	6(3.7)	
Vomiting	Yes	27(10.8)	9(5.6)	0.064
	No	222(89.2)	153(94.4)	

However; Statistically significant differences in the satisfaction have been found between both genders in stress level preoperatively as half females (50%) feeling stressful while the males (27.7%), ( $P < 0.001$ ) and this came in agreement that the males reported that their Anesthesiologist were highly skillful (98.8%) while the female reported (85.2%), ( $P < 0.001$ ). (Table 6)

Variable		Male N(%)	Female N(%)	P value
Meeting Patients' Concerns	Agree	216(86.7)	141(87.0)	0.932
	Disagree	33(13.3)	21(13.0)	
Given a Clear Message	Agree	225(90.4)	147(90.7)	0.898
	Disagree	24(9.6)	15(9.3)	
Trust	Confident	228(91.6)	141(87.0)	0.139
	Unconfident	21(8.4)	21(13.0)	
Stress	Relaxed	180(72.3)	81(50.0)	<0.001*
	Stressed	69(27.7)	81(50.0)	
Recommended Anesthesiologist	Yes	222(89.2)	144(88.9)	0.932
	No	27(10.8)	18(11.1)	
Information Amount	Enough	186(74.7)	123(75.9)	0.778
	Not Enough	63(25.3)	39(24.1)	
Anesthesiologist Kindness	Gentle	222(89.2)	141(87.0)	0.513
	Not Gentle	27(10.8)	21(13.0)	
Anesthesiologist technical skills	Skillful	246(98.8)	138(85.2)	<0.001*
	Non-Skillful	3(1.2)	24(14.8)	
How friendly was the Anesthesiologist	Friendly	237(95.2)	150(92.6)	0.274
	Un-Friendly	12(4.8)	12(7.4)	
Anesthesiologist Clinic Visit	Long	234(94.0)	150(92.6)	0.580
	Short	15(6.0)	12(7.4)	

As Overall patient satisfaction toward Anesthesia Experience in our hospital was 95% (Fig. 1) with surprising result showed that the male overall satisfaction was 99% in comparing to females 89% and significant ( $P = 0.010$ ).



**Figure 1:** Overall Participants Experience

### Discussion:

Patient satisfaction in healthcare setting it is like an equation between pre care expectations, and after care experience, so, any concerns or problems identified by patients must be managed seriously with the trail of studying, analyzing, and then implements appropriate interventions (11).

Our study showed a highest satisfaction of patients toward anesthesia experience (95.0%) which is the higher than all studies conducted in Kingdom of Saudi Arabia tow studies showed an overall satisfaction of 95.2% and 56.5%. (2,12).

The response rate in our study was 94.5% which is consider lowest than other multi-institutional study (100%) in Saudi Arabia (2), but in comparing to international studies (72%) in United State (13) reflect good response.

We found a diversity of anesthesia types utilized in the hospital; General, Local, Spinal, and Conscious Sedation that's came on agreement with most of the studies that involved all types of anesthesia in the same study and analysis as well. (2, 14-15).

Many studies agreed that the participants were reported satisfied in pain management postoperatively immediatly after operation, (92.21% and 81.41%) (15), as our study 97.1%.

In postoperative vomiting area considered a dissatisfying point as Alnashri Y M et al in Saudi Arabia 2023 and Myles P S from Australia which against of our data as our patients were highly satisfied (91.2%) about management of immediate postoperative vomiting (16-17).

Regarding the satisfaction towards the anesthetists; our study in confirm with Fung D et al as they found the satisfaction about physicians was 99% (7).

The all studies about patient-related factors include gender. as is female lower satisfaction (18-23).

The major limitations of this study were the small sample of some types of anesthesia, not studying the type of surgeries, and to get more informative idea, other factors of the experience that reflect the effectiveness of the service delivery should also be evaluated, such as the average of clinic visit.

### Conclusion:

The paranesthesia orientation and discussion with the patients led to better understanding to the patients about the expected postoperative expectations and management.

**Contribution statement:**

H. Al-Najjar: contributed to the source, data collection, design, analysis, interpretation, and drafting of the research manuscript, M. Abaalkhayl: contributed to the inception, design, analysis, interpretation, and drafting of the research manuscript, M. Alghasham: contributed to the design, analysis, interpretation, and drafting of the research manuscript, A.R.K Attia: contributed to the analysis, interpretation, and drafting of the research manuscript. All authors read and approved the manuscript for publication. M. Abaalkhayl: is the first and the corresponding author.

**Ethical considerations**

All investigators completed the Bioethics certificate from The National Committee of Bioethics at King Abdulaziz City for Science and Technology.

All investigators declare there is no conflict of interest.

The ethical approval for this study was obtained from the committees of research ethics, Deanship of Scientific Research at Qassim University

All authors declare that no funds, grants, or other support were received during the preparation of this manuscript

**Consent for publication:**

The survey included a cover letter and a questionnaire with Arabic and English versions.

**Availability of supporting data:**

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request .

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**References:**

1. Eagle CJ, Davies JM. Current models of “quality” – An introduction for anaesthetists. *Can J Anaesth* 1993;40:851-62.
2. Alsaif A, Alqahtani S, Alanazi F, Alrashed F, Almutairi A. Patient satisfaction and experience with anesthesia: A multicenter survey in Saudi population. *Saudi J Anaesth* 2018;12:304-10.
3. Siegrist Jr, Richard Bolton. "Patient satisfaction: history, myths, and misperceptions." *AMA Journal of Ethics* 15.11 (2013): 982-987.
4. Mahon P. Y. An analysis of the concept ‘patient satisfaction’ as it relates to contemporary nursing care. *Journal of Advanced Nursing*. 1996;24(6):1241–1248. doi: 10.1111/j.1365-2648.1996.tb01031.x.
5. Hall, J. A., & Dornan, M. C. (1988). What patients like about their medical care and how often they are asked: A meta-analysis of the satisfaction literature. *Social Science & Medicine*, 27(9), 935–939. doi:10.1016/0277-9536(88)90284-5
6. Sheffer MB, Greifenstein FE. The emotional responses of patients of surgery and anesthesia. *Anesthesiology*. 1960;21:502–7.
7. Fung D, Cohen MM. Measuring patient satisfaction with anesthesia care: A review of current methodology. *Anesth Analg*. 1998;87:1089–98.
8. Bell DM, Halliburton JR, Preston JC. An evaluation of anesthesia patient satisfaction instruments. *AANA J*. 2004;72:211–7.
9. Cleary PD, Edgman-Levitan S, Roberts M, Moloney TW, McMullen W, Walker JD, et al. Patients evaluate their hospital care: A national survey. *Health Aff (Millwood)* 1991;10:254–67.
10. Cronbach, L.J. Coefficient alpha and the internal structure of tests. *Psychometrika* 16, 297–334 (1951). <https://doi.org/10.1007/BF02310555>

11. Fung D, Cohen MM. Measuring patient satisfaction with anesthesia care: a review of current methodology. *Anesth Analg*. 1998 Nov;87(5):1089-98. doi: 10.1097/00000539-199811000-00020. PMID: 9806687.
12. Alshehri AA, Alomar YM, Mohammed GA, Al-Fozan MS, Al-Harbi MS, Alrobai KA, Zahoor H. A survey on postanesthetic patient satisfaction in a university hospital. *Saudi J Anaesth*. 2015 Jul-Sep;9(3):303-5. doi: 10.4103/1658-354X.158499. PMID: 26240551; PMCID: PMC4478825.
13. Samion Shabashev, Yasser Fouad, T. Kate Huncke & J. Thomas Roland (2017): Cochlear implantation under conscious sedation with local anesthesia; Safety, Efficacy, Costs, and Satisfaction, *Cochlear Implants International*, DOI: 10.1080/14670100.2017.1376423.
14. Andemeskel, Y.M., Elsholz, T., Gebreyohannes, G. et al. 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, 669 (2019). <https://doi.org/10.1186/s12913-019-4499-x>
15. Atsedu Endale Simegn, Debas Yaregal Melesse, Yosef Belay Bizuneh, Wudie Mekonnen Alemu, "Patient Satisfaction Survey on Perioperative Anesthesia Service in University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia, 2021", *Anesthesiology Research and Practice*, vol. 2021, Article ID 3379850, 7 pages, 2021. <https://doi.org/10.1155/2021/3379850>
16. Alnashri Y M, Alfaqih O Y, Buhaliyqh M A, et al. (January 16, 2023) Patient Satisfaction and Its Predictors With Perioperative Anesthesia Care at Two General Hospitals in Southwestern Saudi Arabia. *Cureus* 15(1): e33824. DOI 10.7759/cureus.33824
17. P S Myles, D L Williams, M Hendrata, H Anderson, A M Weeks, Patient satisfaction after anaesthesia and surgery: results of a prospective survey of 10,811 patients., *BJA: British Journal of Anaesthesia*, Volume 84, Issue 1, Jan 2000, Pages 6–10, <https://doi.org/10.1093/oxfordjournals.bja.a013383>
18. Capuzzo M, Landi F, Bassani A, et al. Emotional and interpersonal factors are most important for patient satisfaction with anaesthesia. *Acta Anaesthesiol Scand* 2005;49:735–42
19. Sauaia A, Min S-J, Leber C, et al. Postoperative pain management in elderly patients: correlation between adherence to treatment guidelines and patient satisfaction. *J Am Geriatr Soc* 2005;53:274–82.
20. Whitty PM, Shaw IH, Goodwin DR. Patient satisfaction with general anaesthesia. Too difficult to measure? *Anaesthesia* 1996;51:327–32
21. Heidegger T, Husemann Y, Nuebling M, et al. Patient satisfaction with anaesthesia care: development of a psychometric questionnaire and benchmarking among six hospitals in Switzerland and Austria. *Br J Anaesth* 2002;89:863–72.
22. Auquier P, Pernoud N, Bruder N, et al. Development and validation of a perioperative satisfaction questionnaire. *Anesthesiology* 2005;102:1116–23.
23. Capuzzo M, Gilli G, Paparella L, et al. Factors predictive of patient satisfaction with anesthesia. *Anesth Analg* 2007;105:435–42