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Research Article

### EXPERIENCE OF PATIENTS AND THEIR SATISFACTION TOWARDS ANASTHESIA IN SAUDI ARABIA

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**Background and Objectives:** Patients' satisfaction of anesthesia outcomes is a major part of the overall quality of health care. The aim of this study is to evaluate patient's satisfaction whether pre- or post-operative as well as overall impression using a multicenter prespecified survey tool.

**Methods:** Three hundred and three patients who underwent surgery regardless the type of anesthesia were surveyed. The interview conducted face to face before surgery then within the first 24 h of surgery. We recorded all basic demographics of patients, the quality of postoperative symptoms control, and the impression about anesthesia team.

**Results:** The overall satisfaction level was moderate (56.5%) with nearly half of the patients dissatisfied with their anesthetic care due to different reasons. Nausea and vomiting control was the most common postoperative reasons for dissatisfaction followed by pain control with 35.6% and 31.7%, respectively.

**Conclusion:** Type of anesthesia, giving an informative visit to the patient, and the control of postoperative symptoms are the most important predictors of patients' satisfaction.

**Key words:** Anesthesia, nausea, pain, patient satisfaction, vomiting.

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## INTRODUCTION:

In the late 1980's and early 1990's, the quality assurance movement in health care began to gather momentum [1]. One of the major aspects of this quality is patients' experience in surgical and anesthesia care. The perception of anesthesia care has been always poor, and even some patients do not consider them real physicians [2]. As early as 1996, an editorial on patient satisfaction showed the emerging need for the assessment of patient satisfaction with anesthesia care and urged anesthesiologists to figure out a reliable assessment methodologies [3]. Hence, patients' satisfaction has identified as a major target for many studies and non-separable gear needed for the integrity of health service quality [4,5]. Furthermore, its measurement is required to validate and measure health-care improvement in general [6]. However, the current clinical experience tells us that all tools used for the assessment are not highly reliable or accurately designed. Patient satisfaction as defined by Pascoe [7] is the patient's reaction consisting of an "emotional response" and "cognitive evaluation" to the care he receives. Consequently, it seems unwise to involve patients in the development of the assessment tools because it is highly subjective and cofounded by many factors such as the socioeconomic standard, demographic data, cultural level, patients' preferences, quality of tool used, and cognitive ability of the patients [8]. In the same context, there is a reputable tool in Europe for measuring patient satisfaction called "Te Picker inpatient survey; [9]" however, many flaws and drawbacks have been found in the design process which done without true patients' involvement [10]. Similarly, another tool which underwent a better extensive development is "Hospital Consumer Assessment of Healthcare Providers and Systems Survey;" being used by Press Ganey in the United States [11]. However, it is still so hard to assess the quality of service in preoperative and intraoperative occasions. The aim of this survey is to evaluate both pre- and post-operative patient satisfaction during the patient stays at five different hospitals in Saudi Arabia.

## METHODS:

### Study design

This is a cross-sectional study using a predesigned questionnaire administered during January 2018.

### Study setting and site

The survey was undertaken among the patients undergoing surgery in 5 hospitals in Saudi Arabia.

### Research instrument

We conducted a cross-sectional survey study using a prespecified questionnaire, distributed as hard copies by research collaborators. The questionnaire contains questions categorized into four domains, including demographics characteristic, preoperative visit/satisfaction, postoperative treatment/satisfaction, and overall impression about anesthesia team. Responses to the opening questions for both pre- and post-operative experience were "yes" and "no." Format of 5-point Likert scale including "Strongly disagree," "Disagree," "Neither agree nor disagree," "Agree," and "Strongly agree" were responses for opinion questions with a score ranging from 1 to 5, respectively. On the other hand, a 6-point Likert scale including "Very dissatisfied," "Dissatisfied," "Slightly dissatisfied," "Slightly satisfied," "Satisfied," and "Very satisfied" were used to assess satisfaction with a score ranging from 0 to 5, respectively. The first question was designed as written consent for the questionnaire. One pilot surveys were distributed to a pilot group of 50 patients to ensure the validity of questionnaire. The results from the pilot survey and respondents' solicited comments were used to additionally perfect the questionnaire. The complete research questionnaire is provided in the Supplementary Table 1.

### Testing reliability

We used the most popular reliability test, Cronbach's alpha [12] to measure the internal consistency of our survey on the 50 patients (value >0.70 suggests adequate internal consistency).

### Data collection

Local teams at each hospital conducted surveys. The survey packet contained a cover letter and a questionnaire with Arabic and English versions. The survey has been handed to each patient to read and decide whether to participate or not. Patients were interviewed preoperative and again within 24-h postoperatively.

### Participants

The study aimed to recruit all potential all patients undergoing anesthesia in throughout January 2018 with no restrictions on type of anesthesia or surgery, race, gender, or age. We have excluded patients admitted to Intensive Care Unit postoperatively.

### Data analysis

All collected data were transferred into a spreadsheet for further analysis. Standard descriptive measures were calculated for each question/item individually.

For data analysis, SPSS 24 for Windows (SPSS Inc., Chicago, IL, USA) were used. 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, "Very 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:

### Pilot study

Cronbach's alpha for the pilot 50 patients was 0.75 suggesting adequate internal consistency, giving our questionnaire a satisfactory reliability. Comments given by patients were used to improve the questionnaire to get the current final version.

### Patients' characteristics

The response rate of the study was 100% and with total of 303 participants of different types of anesthesia and surgeries. The mean (standard deviation) age was 32.8 (11.8) with age of patients ranging from 15 to 71 years old [Table 1].

### Preoperative experience and satisfaction

Most of the patients (63.4%) got a visit by the anesthesiologist with the obvious predominance of patients' satisfaction. The results showed a significant interaction between type of anesthesia and level of satisfaction using Chi-square test ( $P = 0.044$ ).

However, this interaction was not present in other items of measurement [Table 2].

### Postoperative experience and satisfaction

Most of the patients were satisfied with pain and nausea/vomiting treatment after surgery with percentages of 66% and 49.5%, respectively. The results showed a significant interaction between type of anesthesia and level of satisfaction with pain treatment ( $P = 0.018$ ) with the most satisfaction level with epidural/spinal anesthesia (83.6%). Similarly, a significant interaction found with frequency of nausea/vomiting ( $P = 0.037$ ) and the highest incidence in general anesthesia (39.1%) [Table 3].

### Overall impression about anesthesia team

Majority of patients (66.7%) were satisfied with overall care given by anesthesia department with 64.7% of patients will recommend the anesthesia team to family members. Interestingly, this recommendation was found to have a statistical significant ( $P = 0.017$ ) interaction with the anesthesia type when Chi-square used [Table 4]. Variations in the average satisfaction percentages have been found between different types of anesthesia. The highest average overall satisfaction was found in general anesthesia with 57%. In the contrary, the lowest percentages were observed in local anesthesia cases with average of 41% only.

### Multivariate linear regression

Multiple regression analysis was conducted to predict the overall satisfaction score. The predictors were age, gender, type of anesthesia, and surgical specialty. The linear combination of all these predictors was significantly related to satisfaction score  $F(4,297) = 5.5, P > 0.001$  [Table 5].

**Table 1: Basic characteristics of all patients included in the survey**

Patients' characteristics	Age		P	Gender		P	Total
	≤40, n (%)	>40, n (%)		Male, n (%)	Female, n (%)		
Type of anesthesia							
General anesthesia	197 (81.1)	56 (93.3)	0.127	144 (97.3)	109 (70.3)	<0.001**	253
Epidural/spinal anesthesia	37 (15.2)	4 (6.7)		2 (1.4)	39 (25.2)		41
Local anesthesia	7 (2.9)	0		1 (0.7)	6 (3.9)		7
Peripheral nerve block	2 (0.8)	0		1 (0.7)	1 (0.7)		2
Surgical specialty							
Cardiothoracic surgery	2 (0.8)	11 (18.3)	<0.001**	8 (5.4)	5 (3.3)	<0.001**	13
ENT surgery	2 (0.8)	0		1 (0.7)	1 (0.7)		2
General surgery	69 (28.5)	8 (13.3)		50 (33.8)	27 (17.5)		77
GIT surgery	28 (11.6)	14 (23.3)		27 (18.2)	15 (9.7)		42
Neurosurgery	5 (2.1)	1 (1.7)		4 (2.7)	2 (1.3)		6
Obstetrics and gynecology	80 (33.1)	7 (11.7)		0	87 (56.5)		87
Ophthalmic surgery	1 (0.4)	0		0	1 (0.7)		1
Orthopedic surgery	38 (15.7)	12 (20)		43 (29.1)	7 (4.6)		50
Plastic surgery	15 (6.2)	6 (10)		13 (8.8)	8 (5.2)		21
Urologic surgery	1 (0.4)	1 (1.7)		1 (0.7)	1 (0.7)		2
Vascular surgery	1 (0.4)	0		1 (0.7)	0		1

\*\*The  $\chi^2$  statistic is significant ( $P>0.001$ ). n: Number of answers; ENT: Ear, nose, and throat; GIT: Gastrointestinal tract

**Table 2: Preoperative experience of patients included in the survey**

Preoperative experience questions	Type of anesthesia				Total	P
	General anesthesia, n (%)	Epidural/spinal anesthesia, n (%)	Local anesthesia, n (%)	Peripheral nerve block, n (%)		
Anesthesiologist visit						
No	88 (34.8)	17 (41.5)	5 (71.4)	1 (50)	111	0.204
Yes	165 (65.2)	24 (58.5)	2 (28.6)	1 (50)	192	
Ability to ask questions						
Disagree	12 (7.3)	0	0	0	12	0.471
Neither agree nor disagree	17 (10.3)	0	0	0	17	
Agree	136 (82.4)	24 (100)	2 (100)	1 (100)	163	
Understandable anesthesiologist						
Disagree	9 (5.5)	0	1 (50)	0	10	0.044*
Neither agree nor disagree	18 (10.9)	0	0	0	18	
Agree	138 (83.6)	24 (100)	1 (50)	1 (100)	164	
Confidence in anesthesiologist						
Dissatisfied	82 (32.4)	15 (36.6)	5 (71.4)	0	102	0.121
Satisfied	171 (67.6)	26 (63.4)	2 (28.6)	2 (100)	201	
Anesthesia team willing to listen						
Dissatisfied	99 (39.1)	16 (39)	4 (57.1)	1 (50)	120	0.796
Satisfied	154 (60.9)	25 (61)	3 (42.9)	1 (50)	183	
Anesthesiologist explained feelings after anesthesia						
Disagree	34 (13.4)	6 (14.6)	3 (42.9)	0	43	0.352
Neither agree nor disagree	70 (27.7)	11 (26.8)	2 (28.6)	0	83	
Agree	149 (58.9)	24 (58.5)	2 (28.6)	2 (100)	177	

\*The  $\chi^2$  statistic is significant ( $P<0.05$ ). n: Number of answers

**Table 3: Postoperative experience of patients included in the survey**

Postoperative experience questions	Type of anesthesia				Total	P
	General anesthesia, n (%)	Epidural/spinal anesthesia, n (%)	Local anesthesia, n (%)	Peripheral nerve block, n (%)		
Satisfaction with pain therapy after surgery						
Dissatisfied	76 (30)	13 (31.7)	6 (85.7)	1 (50)	96	0.018*
Satisfied	177 (70)	28 (86.3)	1 (14.3)	1 (50)	207	
Postoperative nausea and/or vomiting						
No	154 (60.9)	33 (80.5)	6 (85.7)	2 (100)	195	0.037*
Yes	99 (39.1)	8 (19.5)	1 (14.3)	0	108	
Satisfaction with nausea/vomiting therapy after surgery						
Dissatisfied	50 (49)	5 (62.5)	1 (100)	0	56	0.465
Satisfied	52 (51)	3 (37.5)	0	0	55	
Satisfaction with privacy given						
Dissatisfied	87 (34.4)	14 (34.1)	4 (57.1)	0	105	0.451
Satisfied	166 (65.6)	27 (65.9)	3 (42.9)	2 (100)	198	

\*The  $\chi^2$  statistic is significant ( $P < 0.05$ ). n: Number of answers

**Table 4: Overall impression of patients included in the survey about anesthesia department**

Overall impression about anesthesia department	Type of anesthesia				Total	P
	General anesthesia, n (%)	Epidural/spinal anesthesia, n (%)	Local anesthesia, n (%)	Peripheral nerve block, n (%)		
Satisfaction with care given by department of anesthesia						
Dissatisfied	89 (35.2)	10 (24.4)	2 (28.6)	0	101	0.402
Satisfied	164 (64.8)	31 (75.6)	5 (71.4)	2 (100)	202	
Rating quality of care by the anesthesiologists						
Dissatisfied	84 (32.2)	14 (34.1)	2 (28.6)	1 (50)	101	0.953
Satisfied	169 (66.8)	27 (65.9)	5 (71.4)	1 (50)	202	
Recommending anesthesia team to others in my family						
Disagree	19 (7.5)	1 (2.4)	0	0	20	0.017*
Neither agree nor disagree	72 (28.5)	8 (19.5)	6 (85.7)	1 (50)	87	
Agree	162 (64)	32 (78)	1 (14.3)	1 (50)	196	
Understanding of the anesthesiologist's role						
Disagree	16 (6.3)	0	0	0	16	0.155
Neither agree nor disagree	28 (11.1)	0	1 (14.3)	0	29	
Agree	209 (82.6)	41 (100)	6 (85.7)	2 (100)	258	

\*The  $\chi^2$  statistic is significant ( $P < 0.05$ ). n: Number of answers

**Table 5: Multivariate linear regression models between different predictors and satisfaction score**

Predictors	Regression weights		SE	t	P	R <sup>2</sup>	Constant	n
	B	$\beta$						
Age	2.43	0.10	1.34	1.81	0.071*	0.069	39.655	303
Gender	2.59	0.14	1.11	2.33	0.020*			
Type of anesthesia	-3.071	-0.162	1.12	-2.734	0.007*			
Specialty	-0.621	-0.148	0.24	-2.627	0.009*			

\*The  $\chi^2$  statistic is significant ( $P < 0.05$ ). B: Unstandardized coefficient of regression;  $\beta$ : Standardized coefficient of regression; t: t-statistic; R<sup>2</sup>: Proportion of the total variability explained by the factor effect; n: Number of answers; SE: Standard error

### DISCUSSION:

Patient satisfaction is the balance between prior expectations, and later, perceptions of the health care receive so, the poor quality will repel patients from the using the service with ease, as it should be. Any concerns or problems identified by patients must be taken into consideration with the trail of studying, analyzing, and then implements appropriate solutions [4]. Our survey found a moderate overall satisfaction of patients (56.5%), which is less than another survey conducted in Saudi patients showing an overall satisfaction of 95.2% [13]. In the same context, another study conducted in Canada with 2730 patient showed overall anesthesia satisfaction as high as 98.9% of the patients [14]. These high rates were present in other studies with dissatisfaction rates down to >15% [15-17]. However, these high rates may be giving a false impression because some patients may be biased by the fear of getting a lower quality of care with giving negative appraisals [18,19]. This can be furtherly proved by the results of a multicenter study conducted in 803 Saudi patients showing a reasonable satisfaction rate in only 21.5% of patients [20]. Our results also showed a great contribution of type of anesthesia in the degree of patients' satisfaction, which was present in both pre-, and post-operative as well as overall impression of anesthesia team. The highest satisfaction rate was present with both general and epidural/spinal anesthesia. About 60% of patients underwent both types got visited by an anesthesiologist which seems to have a great impact on patients with average satisfaction of both types being around 60% too. This shows that the interpersonal relationship between patients and anthologists as well as amount of information provided to patient's plays a great role too. These results were confirmed by many studies, which showed a superiority and higher satisfaction of patients with both local and nerve block methods [21-25]. It is also well-proved by many studies that postoperative symptoms' control (pain nausea and vomiting) plays a great role in patients' satisfaction [26-29]. This may explain the better reviews on the aforementioned types of anesthesia which usually

associated with procedures has much less frequent symptoms. It also can explain the effect of specialty of the results with lower satisfaction in major and abdominal surgeries, hence more postoperative symptoms amplified by the lack of patients' ability to differentiate between anesthesia and surgery outcomes.

A similar effect of age and gender was found with higher satisfaction in males and older patients, which was proved by some studies too [30-33]. This study, with 303 respondents, is one of the largest satisfaction surveys conducted in Saudi population so far. We conducted for the first time effect of the type of anesthesia in overall satisfaction along with all other demographic characteristics such as age, sex, and surgical specialty.

The major limitations of this study were the low response rate, the small sample of some types of anesthesia and refusal of patients to respond to some questions. Furthermore, the conceptual problems with patient satisfaction might be insurmountable, because perceptions of quality of care are subjective. In the future studies, the reasons for dissatisfaction should be asked of both satisfied and dissatisfied patients, to give a validity check of the global satisfaction questions for both groups. To obtain a more complete picture, other aspects of the experience that reflect the efficiency of the service delivery should also be assessed, such as the operating room turnover time and the time between the fulfillment of discharge criteria and actual discharge. We also recommend an assessment before discharge when patient is more oriented to differentiate surgical from anesthesia complications.

### CONCLUSION:

Type of anesthesia, giving an informative visit to the patient, and the control of postoperative symptoms are the most important predictors of patients' satisfaction. Demographic and subjective differences between patients are effective but to a lesser extent.

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