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Assessing Patient Satisfaction with Perioperative Anesthesia Services

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Abstract:
Background: Patient satisfaction is a critical indicator of healthcare quality, particularly in perioperative anesthesia services. This study aimed to evaluate patient satisfaction and associated factors regarding perioperative anesthesia services
Methods: A cross-sectional institutional-based study was conducted. Data were collected and analyzed using Epi-data version 3.1 and STATA version 14.1, respectively. The strength of associations was assessed using adjusted odds ratios with a 95% confidence interval, considering $p < 0.05$ as statistically significant.
Results: The study included 398 patients with a response rate of 98%. Overall, 74% of patients (95% CI: 69–78) reported satisfaction with perioperative anesthesia services. Patients receiving regional anesthesia were 2.8 times more satisfied than those receiving general anesthesia (AOR = 2.8, 95% CI: 1.42–5.36). Adequate information provision was associated with 3.14 times higher satisfaction (AOR = 3.14, 95% CI: 1.71–5.74). Patients not experiencing pain during anesthesia induction were 2.7 times more satisfied (AOR = 2.7, 95% CI: 1.43–5.08) than those who did.
Conclusion and Recommendations: The study found a 74% satisfaction rate with perioperative anesthesia services. Factors such as receiving regional anesthesia, adequate information provision, post-operative visits by anesthetists, absence of nausea/vomiting and pain during and after anesthesia were associated with higher satisfaction levels. Anesthetists are recommended to focus on reducing factors that negatively impact patient satisfaction during surgical procedures.

Background:
Patient satisfaction is a critical measure of healthcare quality, reflecting how well services meet patients' needs and expectations. It encompasses a subjective evaluation of care based on individual expectations and plays a pivotal role in assessing healthcare excellence. The impact of patient satisfaction extends to various aspects, influencing healthcare resource utilization, treatment adherence, and the patient-practitioner relationship's strength. (Batbaatar et al., 2017)
Anesthesia, including regional, general, or a combination, is integral to modern surgical procedures. Therefore, evaluating patient satisfaction post-anesthesia is vital for quality control and ongoing enhancement of hospital care. A patient-centric approach, aiming to fulfill patients' needs across physical,

mental, and emotional dimensions, is fundamental to healthcare systems' objectives and organizational health. (Andemeskel et al., 2019)

While many studies report high patient satisfaction with anesthesia services, some indicate lower satisfaction rates. Consequently, healthcare providers must prioritize exceptional care, with patient satisfaction being a key aspect of quality assessment. Addressing patient dissatisfaction is crucial as it can adversely impact healthcare providers and facilities, leading to potential patient attrition and negative word-of-mouth feedback. (Ting et al., 2020)

Various factors influence patient satisfaction in anesthesia services, including demographic variables (such as age, education, and marital status), expectations, information provision, emotional support, anesthesia duration, perioperative complications, postoperative pain management, and interactions with healthcare professionals. Postoperative visits and adequate information provision have been identified as significant contributors to improved patient satisfaction. (Akpinar et al., 2019)

In previous studies have shown varying levels of patient satisfaction with anesthesia services, indicating a need for further assessment and improvement efforts. Therefore, this research aims to evaluate patient satisfaction and associated factors in perioperative anesthesia services in 2021, building on recommendations from prior studies. (Siraneh et al., 2020)

Methods:

Study Setting:

The study was conducted at specifically in recovery rooms and surgical wards, several operation rooms, including obstetric and ophthalmic units, and intensive care units.

Study Design and Period:

An institutional-based cross-sectional study was conducted

Sample Size and Sampling Procedure:

The sample size was calculated using the single population proportion formula, , which reported a 60% satisfaction rate. With a 95% confidence interval, 5% margin of error, and 10% nonresponse rate, the calculated sample size was 406. All adult emergency and elective patients undergoing anesthesia for various surgeries were included until the sample size was met.

Data Collection Procedure and Quality Assurance:

A pretested semistructured questionnaire, adapted from the Leiden Perioperative Care Patient Satisfaction Questionnaire, was used. The questionnaire assessed satisfaction across three dimensions: staff-patient relationship, information provision, and fear and concern. Data were collected through chart review and face-to-face interviews by trained anesthetists. Supervision, follow-up, and daily checks ensured data completeness and consistency.

Variables of the Study:

The dependent variable was patient satisfaction, measured on a five-point Likert scale and dichotomized as satisfied or dissatisfied. Independent variables included sociodemographic factors, surgical and anesthetic details, preoperative, intraoperative, and postoperative anesthesia-related factors, and postoperative anesthetist visits.

Data Processing and Analysis:

Data were coded, entered into Epi-data version 3.1, and analyzed using STATA version 14.1. Normality and multicollinearity were checked, and appropriate statistical tests, including bivariate and multivariate binary logistic regression, were conducted. Variables with a p-value <0.25 in the bivariate analysis were included in the multivariate analysis, with a significance level set at $p < 0.05$. Model fitness was assessed using the Hosmer and Lemeshow goodness of fit test.

Results:

Sociodemographic and Clinical Characteristics of Study Participants: Out of 398 adult patients included in the study, 65.33% were females, and 51.76% were aged between 18 and 29 years. About 33.42% had no formal education, and 83.42% underwent major surgery. The majority (62.81%) received regional anesthesia.

Intraoperative Anesthesia-Related Factors and Reception in the Operating Theatre: Most respondents (85.43%) reported good reception by the anesthetist, and 89.7% felt their privacy was maintained. A large proportion did not experience pain during or immediately after the operation, with 92.21% and 81.41%, respectively, reporting no pain.

Overall Patient Satisfaction with Perioperative Anesthesia Services: The overall patient satisfaction rate with perioperative anesthesia care was 74% (95% CI: 69–78).

Factors Associated with Patient Satisfaction on Perioperative Anesthesia Services: Multivariate binary logistic regression revealed significant associations between patient satisfaction and several factors. Adults who received regional anesthesia were 2.8 times more likely to be satisfied compared to those receiving general anesthesia (AOR = 2.8, 95% CI: 1.42–5.36). Those who received adequate information about anesthesia had 3.14 times higher odds of satisfaction (AOR = 3.14, 95% CI: 1.71–5.74). Patients not experiencing pain during anesthesia induction were 2.7 times more satisfied (AOR = 2.7, 95% CI: 1.43–5.08), while those not feeling pain immediately after the operation had 2.9 times higher odds of satisfaction (AOR = 2.9, 95% CI: 1.47–5.74). Additionally, absence of nausea/vomiting and postoperative visits by anesthetists were significant predictors of satisfaction. Patients without nausea/vomiting had 2.3 times higher odds of satisfaction (AOR = 2.3, 95% CI: 1.25–4.17), and those visited by anesthetists after the operation were 5.5 times more likely to be satisfied (AOR = 5.5, 95% CI: 2.89–10.52).

Table 1: Sociodemographic and clinical characteristics of participants (N = 398).

Variables	**Level of satisfaction**	**Frequency (N)**	**Satisfied (%)**	**Dissatisfied (%)**
Sex	Male	138	101 (73.2)	37 (26.8)
	Female	260	192 (73.8)	68 (26.2)
Age	18–29	206	149 (72.3)	57 (27.7)
	30–49	139	103 (74.1)	36 (25.9)
	50–65	42	33 (78.5)	9 (21.5)
	>65	11	8 (72.8)	3 (27.2)
Educational status	No formal education	133	102 (76.7)	31 (23.3)
	Primary	105	71 (67.6)	34 (32.4)
	Secondary	94	71 (75.5)	23 (24.5)
	Higher education	66	49 (74.2)	17 (25.8)
Types of anesthesia	General	148	97 (65.5)	51 (34.5)
	Regional	250	196 (78.4)	54 (21.6)
Types of surgery	Minor	66	52 (78.8)	14 (21.2)
	Major	332	241 (72.6)	91 (27.4)
ASA status	ASA I	212	158 (74.5)	54 (25.5)
	ASA II	166	123 (74.0)	43 (26.0)
	ASA III	20	12 (60.0)	8 (40.0)
Introduce him or herself	Yes	195	157 (80.5)	38 (19.5)
	No	203	136 (67.0)	67 (33.0)
Give adequate information about anesthesia	Yes	252	213 (84.5)	39 (15.5)
	No	146	80 (55.0)	66 (45.2)
Chance to choose anesthesia	Yes	47	39 (83.0)	8 (17.0)
	No	351	254 (72.4)	97 (27.6)
Chance to ask question	Yes	105	89 (84.8)	16 (15.2)
	No	293	204 (69.7)	89 (30.4)

Table 2: Intraoperative anesthesia-related factors and reception in the operating theatre (N = 398).

Variables	**Level of satisfaction**	**Frequency, N (%)**	**Satisfied (%)**	**Dissatisfied (%)**
Reception of anesthetist in the OR	Good	340 (85.43)	255 (75.0)	85 (25.0)
	Bad	58 (14.57)	38 (65.5)	20 (34.5)
Pain during induction of anesthesia	Yes	136 (34.17)	93 (68.4)	43 (31.6)
	No	262 (65.83)	200 (76.3)	62 (23.7)
Anesthetists consider your privacy	Yes	357 (89.70)	266 (74.5)	91 (25.5)
in the operation room	No	41 (10.30)	27 (65.9)	14 (34.1)
Feel pain during operation	Yes	31 (7.79)	22 (71.0)	9 (29.0)
	No	367 (92.21)	271 (74.0)	96 (26.1)
Pain immediately after operation	Yes	74 (18.59)	35 (47.3)	39 (52.7)
	No	324 (81.41)	258 (79.6)	66 (20.3)

Table 3: Bivariate and multivariate binary logistic regression analyses of contributing factors (N = 398).

Variables	**Categories**	**COR (95% CI)**	**AOR (95% CI)**
Types of anesthesia	General	1.00	1.00
	Regional	1.9 (1.21, 3.00)	2.8 (1.41, 5.22)**
Introduce him/her to patient	Yes	1.00	1.00
	No	0.49 (0.31, 0.77)	0.59 (0.31, 1.09)
Give adequate information	Yes	1.00	1.00
	No	0.22 (0.13, 0.35)	0.31 (0.17, 0.58)**
Chance to ask question	Yes	1.00	1.00
	No	0.41 (0.22, 0.74)	0.80 (0.38, 1.71)
Reception of anesthetist in the OR	Good	1.00	1.00
	Bad	0.63 (0.34, 1.14)	0.59 (0.28, 1.21)
Pain during induction	Yes	1.00	1.00
	No	1.49 (0.94, 2.36)	2.70 (1.43, 5.08)**
Considering privacy	Yes	1.00	1.00
	No	0.65 (0.33, 1.31)	0.60 (0.26, 1.37)
Pain immediately after surgery	Yes	1.00	1.00
	No	4.4 (2.56, 7.40)	2.9 (1.47, 5.74)**
Nausea and vomiting	Yes	1.00	1.00
	No	2.73 (1.70, 4.39)	2.3 (1.25, 4.17)**
Anesthetist visit after surgery	No	1.00	1.00
	Yes	4.35 (2.56, 7.40)	5.5 (2.89, 10.52)**

**Significant at $p < 0.05$.

Discussion

In this study, the overall satisfaction of patients with perioperative anesthesia services was 74% (95% CI: 69–78). This finding is similar to a study conducted in India, possibly due to comparable study designs and

socioeconomic statuses. However, our study's satisfaction rate was higher than studies in Hawassa and Eritrea, possibly due to our larger sample size, standardized perioperative management reducing patient complaints, and differences in healthcare infrastructure compared to previous studies,. On the other hand, our satisfaction rate was lower compared to studies in Greece and Nigeria, which could be attributed to socioeconomic, organizational, structural infrastructure, and capacity differences across countries. (Bizuneh et al., 2020)

This study identified several independent variables associated with patient satisfaction regarding anesthesia services at the University of Gondar Comprehensive Specialized Hospital. (Belay et al., 2020)

Patients who received regional anesthesia were more likely to be satisfied compared to those receiving general anesthesia, consistent with previous research. This could be because regional anesthesia allows patients to communicate with relatives immediately post-operation, remain awake, experience less immediate postoperative pain, eat and drink sooner after anesthesia, and communicate early after anesthesia. In contrast, general anesthesia involves complete loss of consciousness, which may lead to different experiences and expectations. (Lorato et al., 2020)

Adequate information provision was associated with higher satisfaction, similar to previous studies. Providing sufficient information about anesthesia's side effects and benefits may psychologically prepare patients for surgery, reduce anxiety, and mitigate postoperative complications, potentially leading to shorter hospital stays. (Bayable et al., 2020)

Patients experiencing pain during anesthesia induction were less satisfied, echoing findings from prior studies. This dissatisfaction could stem from the discomfort of needle insertion and intravenous anesthetic administration during general anesthesia induction compared to regional anesthesia techniques. (Garaniya et al., 2013)

Similarly, patients who felt immediate postoperative pain were less satisfied, consistent with previous research. Pain disrupts sleep, mood, and daily activities, leading to anxiety, depression, and reduced overall well-being. (Argago et al., 2015)

Postoperative nausea and vomiting were also associated with lower satisfaction, as reported in previous studies. These symptoms hinder recovery, interfere with daily activities, and may prolong hospital stays, impacting patient satisfaction negatively. (Onyekwulu and Nwosu, 2009)

Patients who received postoperative visits were more satisfied, aligning with findings from Switzerland. These visits likely provide emotional support, address patient concerns promptly, and facilitate better management of postoperative issues. (Kitila and Yadassa, 2016)

Conclusion and Recommendations

Overall, patients expressed a 74% satisfaction rate with perioperative anesthesia services. Factors associated with higher satisfaction included undergoing regional anesthesia, receiving adequate information, postoperative visits by anesthetists, absence of nausea/vomiting and pain during induction, and no immediate postoperative pain. Anesthetists should focus on addressing these factors to enhance surgical patients' satisfaction levels.

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