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ORIGINAL ARTICLE

Patient Satisfaction with Anesthesia Services Using the American Society of Anesthesiologists Questionnaire: A Cross–Sectional Study in Indonesia

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Abstract

Background: Anesthesia services are an important component of patient–centered healthcare systems. Patient satisfaction is a key indicator of anesthesia service quality. The American Society of Anesthesiologists (ASA) recommendation questionnaire has been developed to assess patient satisfaction comprehensively.

Methods: This descriptive study was conducted at Dr. Hasan Sadikin General Hospital, Bandung, from December to March 2025. A total of 384 patients aged 18–60 years who underwent general or regional anesthesia and met the inclusion criteria were included. Data were collected using a validated and reliable Indonesian version of the full ASA questionnaire. The assessed domains included provision of information and consent, attention and interpersonal relationships, and management of pain and postoperative nausea and vomiting (PONV).

Results: The mean patient satisfaction level was 78.11%. Most patients reported being satisfied to very satisfied with anesthesia services. The highest satisfaction was observed in informed consent (78.8%) and overall anesthesia services (79.74%).

Discussion: These findings suggest that anesthesia services were generally well perceived, particularly in communication and consent processes. Effective perioperative pain and PONV management likely contributed to positive evaluations. However, satisfaction levels below 80% indicate the need for continuous quality improvement, especially in enhancing interpersonal communication and individualized care.

Conclusion: Patients rated anesthesia services as good. The ASA questionnaire is a useful tool for ongoing evaluation and quality improvement of anesthesia care.

Keywords: Anesthesia services; ASA; patient satisfaction; postoperative pain; PONV

Introduction

The need for surgical procedures worldwide continues to increase, with 11% of the global disease burden requiring surgery using general or regional anesthesia. In 2012, approximately 350 million surgeries were performed, and this number is expected to continue to grow as non–communicable diseases increase.[1,2] The burden of surgery is also reflected in the high disability–adjusted life years (DALY) in Southeast Asia, which reached 48 million in 2012.[1,2] The increasing need for surgery demands quality anesthesia services, both in terms of quantity and quality.[3] Patient satisfaction is an important indicator of healthcare quality.[4] This satisfaction is influenced by the balance

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between expectations and reality of service, including cognitive and emotional aspects, as well as the cultural and social background of patients.[5–7] This complexity makes patient satisfaction subjective and difficult to measure.[8,9] In anesthesia, satisfaction assessments often introduce bias, for example, related to patients' lack of understanding of the role of the anesthesiologist, differences in perceptions of service, quality of recovery, and the timing of questionnaire completion.[3,8,10]

Patient satisfaction factors can be divided into modifiable (information provision, interpersonal relationships, pain and PONV management, service accuracy, professionalism) and non–modifiable (age, gender, education, type of surgery, duration of surgery, health status, previous anesthesia experience).[3,11] Various questionnaires have been used to assess anesthesia patient satisfaction, but most do not cover multidimensional aspects.[3,9]

In 2013, the American Society of Anesthesiologists (ASA) recommended a more comprehensive, simple, and easily translatable psychometric questionnaire.[3] This instrument has been tested for validity and reliability, including through collaboration with the Anesthesia Quality Institute (AQI).[3] Studies in Indonesia and abroad have proven the validity of the ASA questionnaire, with patient satisfaction levels ranging from 74–80%.[12–14]

To date, there has been no data on patient satisfaction with anesthesia services at Dr. Hasan Sadikin General Hospital in Bandung, a tertiary referral hospital in West Java and a teaching hospital.[15,16] Patient satisfaction surveys in this hospital are important for evaluating service quality and developing medical education. Based on this, the researchers conducted a study on patient satisfaction with anesthesia services in accordance with ASA recommendations at Dr. Hasan Sadikin General Hospital in Bandung. Therefore, this study aimed to evaluate patient satisfaction with anesthesia services using the ASA–recommended questionnaire and to assess satisfaction levels across its five domains.

Subject and Methods

This study was a descriptive study with data collection using a patient satisfaction questionnaire recommended by the American Society of Anesthesiologists (ASA). The subjects of this study were all patients who received anesthesia services at Dr. Hasan Sadikin General Hospital in Bandung from December 30, 2024, to March 30, 2025.

Inclusion criteria included patients aged ≥18 years, able to read and write, willing to sign informed consent, and having an ASA 1–2 physical status. Patients with major postoperative complications that impaired their ability to complete the questionnaire were excluded. Major complications were defined as clinical conditions requiring intensive care admission, reoperation, or causing significant cognitive or physical impairment that prevented questionnaire completion. Expected postoperative symptoms such as pain, nausea, vomiting, or sore throat were not classified as complications.

The sampling technique used was probability sampling, with proportionate stratified random sampling. A sample size calculation with 10% precision, 95% confidence level, and 5% accuracy yielded a minimum of 384 respondents, which were used in this study. Data collection was performed by administering an online questionnaire 24 hours after anesthesia to patients who did not experience complications. Patients completed the questionnaire independently using an online form. Assistance was provided when necessary without influencing responses. Incomplete questionnaire responses were excluded from the analysis. All included questionnaires were complete, and no missing data were identified. The data were then entered into Microsoft Excel, coded, and analyzed descriptively using frequency distributions, percentages, means, standard deviations, medians, and ranges. Statistical analysis was performed using SPSS software. Descriptive statistics were used to summarize demographic characteristics and satisfaction scores. Normality of continuous data was

assessed using the Shapiro–Wilk test. For comparisons between two independent groups, the Mann–Whitney U test was used when data were not normally distributed. For comparisons across more than two groups, the Kruskal–Wallis test was applied. Correlations between ordinal variables were analyzed using Spearman's rank correlation test. A $p<0.05$ was considered statistically significant. This study was conducted at Dr. Hasan Sadikin General Hospital in Bandung, following ethical approval from the Ethics Committee of the Faculty of Medicine, Padjadjaran University/ Dr. Hasan Sadikin General Hospital in Bandung (Approval Number: DP.04.03/D. XIV.6.5/522/2024). Informed consent was obtained from all participants before enrollment. Participation was voluntary, and all responses were anonymized to ensure confidentiality.

Results

This study analyzed patient satisfaction levels with anesthesia services at Dr. Hasan Sadikin General Hospital in Bandung using the ASA recommendation questionnaire. A total of 384 patients who met the inclusion criteria during the period from December 30, 2024, to March 30, 2025, participated in the study. All subjects agreed to participate after signing an informed consent form. No subjects withdrew or were excluded from this study.

The characteristics of the study subjects consisted of age, gender, education, ethnicity, general condition, type of anesthesia, anesthesia history, and duration of surgery (Table 1). The majority of patients were aged

Table 1 Baseline Characteristics of the Patient

Variable	(n=384)(%)
Age (years)	
18–25	58 (15.1)
26–35	96 (25.0)
36–45	92 (24.0)
46–55	90 (23.4)
56–65	36 (9.4)
>65	12 (3.1)
Gender	
Male	170 (44.3)
Female	214 (55.7)
Education	
Not in school	6 (1.6)
Elementary school	27 (7.0)
Junior high school	66 (17.2)
High school	211 (54.9)
College	74 (19.3)
Ethnic	
Sunda	289 (75.3)
Javanese	80 (20.8)
Chinese	7 (1.8)
Others	8 (2.1)

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Table 1 (continued)

Variable	(n=384)(%)
General Condition Assessment	
Very good	27 (7.0)
Good	140 (36.5)
Fairly good	119 (31.0)
Not good	97 (25.3)
Very bad	1 (0.3)
Types of Anesthesia	
General Anesthesia	335 (87.2)
Regional Anesthesia	49 (12.8)
Anesthesia History	
Yes	65 (16.9)
No	319 (83.1)
Duration of Surgery	
<2 hours	83 (21.6)
>2 hours	301 (78.4)

Note: Categorical data is presented as counts/frequencies and percentages, while numerical data is presented as means, medians, standard deviations, and ranges

26–35 years (25.0%; n=96), with more females (55.7%; n=214) than males (44.3%; n=170). The most common level of education was high school (54.9%; n=211), and the dominant ethnicity was Sundanese (75.3%; n=289). The most common general condition was good (36.5%; n=140). The type of anesthesia was dominated by general anesthesia (87.2%; n=335), while regional anesthesia accounted for 12.8% (n=49). Patients with a history of anesthesia accounted for 16.9% (n=65). The most common duration of surgery was >2 hours (78.4%; n=301) compared to <2 hours (21.6%; n=83).

Patient satisfaction with anesthesia services was generally good, with variable satisfaction scores ranging from 77.36% to 79.74%. The highest satisfaction was observed in the overall service variable, while the lowest was in the interpersonal relationships

Table 2 Summary of Patient Satisfaction Scores

Variable	Total Score	Ideal Score	Percentage	Category
Information Provision	4490	5760	77.95	Good
Decision–Making Approval	1513	1920	78.80	Good
Interpersonal Relationships	4456	5760	77.36	Good
Health Worker Attention	2989	3840	77.84	Good
Post–Anesthesia Pain	1505	1920	78.39	Good
Post–Anesthesia Complaints	1495	1920	77.86	Good
Anesthesia Services	4518	5760	78.44	Good
Overall Service	1531	1920	79.74	Good
Total Satisfaction	22497	28800	78.11	Good

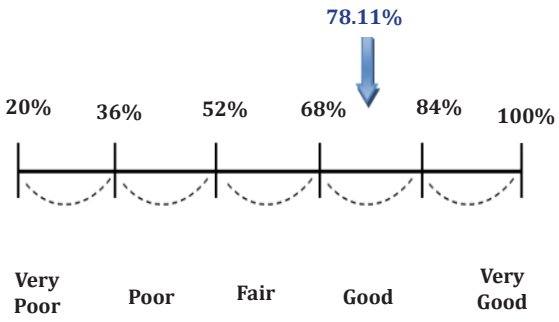

Figure 1 Total Average Patient Satisfaction Percentage on a Continuum

variable. Across all variables, patients reported consistently positive experiences, reflecting favorable perceptions of information provision, decision–making involvement, professional interactions, attentive care from health workers, and post–anesthesia management. A summary of patient satisfaction scores across all variables is presented in Table 2.

The percentage result for the Total Patient Satisfaction variable for Anesthesia Services is 78.11%, which, based on the continuum line (Figure 1), is classified as good. Numerical–categorical data (gender, type of anesthesia, anesthesia history, and duration of surgery) were tested using Mann–Whitney. In contrast, numerical–ordinal data (age, education, and general condition) were tested using Spearman's correlation. The test results showed $p>0.05$ for age, gender, type of anesthesia, and anesthesia history, indicating no significant differences in mean patient satisfaction scores. Conversely, $p<0.05$ for education, general condition, and duration of surgery indicated a statistically significant difference in the mean patient satisfaction scores.

Discussion

Based on the study's results, 384 respondents

Table 3 Comparison of Average Patient Satisfaction Scores Regarding Research Subject Characteristics

Variable	n	Comparison of Average Patient Satisfaction with Research Subject Characteristics			p-value
		Mean±Std	Median	Range (min-max)	
Age (years)					0.557
18–25	58	3.90±0.596	4.00	2.00–5.00	
26–35	96	3.96±0.499	4.00	2.67–5.00	
36–45	92	3.85±0.409	4.00	3.00–5.00	
46–55	90	3.87±0.544	4.00	2.00–5.00	
56–65	36	3.94±0.494	4.00	3.00–5.00	
>65	12	3.83±0.745	4.00	2.00–5.00	
Gender					0.290
Male	170	3.90±0.499	4.00	2.00–5.00	
Female	214	3.89±0.525	4.00	2.00–5.00	
Education					0.0001**
Not in school	6	4.17±0.408	4.00	4.00–5.00	
Elementary school	27	3.91±0.458	4.00	3.00–5.00	
Junior high school	66	3.73±0.586	3.67	2.00–5.00	
High school	211	3.74±0.495	4.00	2.00–5.00	
College	74	3.61±0.412	4.00	3.00–5.00	

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Table 3 (continued)

Variable	n	Comparison of Average Patient Satisfaction with Research Subject Characteristics			p–value
		Mean±SD	Median	Range (min-max)	
General Condition Assessment					0.0001**
Very good	27	4.21±0.563	4.00	3.00–5.00	
Good	140	4.04±0.421	4.00	2.00–5.00	
Fairly good	119	3.86±0.527	4.00	2.00–5.00	
Not good	97	3.65±0.492	3.67	2.00–5.00	
Very bad	1	4.67	4.67	4.67	
Types of Anesthesia					0.202
General Anesthesia	335	3.90±0.521	4.00	2.00–5.00	
Regional Anesthesia	49	3.86±0.461	4.00	2.67–5.00	
Anesthesia History					0.841
Yes	65	3.86±0.530	4.00	2.00–5.00	
No	319	3.90±0.510	4.00	2.00–5.00	
Duration of Surgery					0.022*
<2 hours	83	4.03±0.454	4.00	3.00–5.00	
>2 hours	301	3.86±0.523	4.00	2.00–5.00	

Note: For numerical–categorical data (2 groups), the p–value is tested using an unpaired t–test if the data are normally distributed, with the Mann–Whitney test as an alternative if the data are not normally distributed. For numerical ordinal data, the p–value is tested using Spearman's correlation test. Significance is based on a p–value<0.05

met the inclusion criteria, with the majority aged 26–35 years (25.0%), female (55.7%), high school graduates (54.9%), and of Sundanese ethnicity (75.3%). Most patients were in good general condition (36.5%), underwent general anesthesia (87.2%), had no previous history of anesthesia (83.1%), and underwent surgery lasting >2 hours (78.4%). Preoperative education was shown to reduce patient anxiety and increase satisfaction with communication and anesthesia services, with average satisfaction rates of 77.95% for information provision and 78.80% for decision–making consent. However, a small number of patients expressed dissatisfaction due to limited information or a lack of transparency about risks.[17–21] Interpersonal relationships and healthcare staff attention were also rated positively, with satisfaction rates of 77.36% and 77.84%, respectively, although some respondents rated communication as ineffective.[22,23]

Post–anesthesia complaints, such as pain and PONV, also affected satisfaction. Satisfaction with pain management reached 78.39%, although a small number of patients still experienced post–operative pain. Prompt staff treatment was an important factor that continued to improve patient ratings. Similarly, satisfaction with PONV management was 77.86%, although 1.8% of patients experienced nausea and vomiting.[24,25] Further analysis showed that the duration of surgery was significantly associated with post–anesthesia complaints, with surgeries lasting ≥2 hours increasing the risk of PONV and post–operative complications.[25,26]

A test of the relationship between subject characteristics and satisfaction levels showed that gender, age, type of anesthesia, and anesthesia history did not have a significant effect. Conversely, education, general condition, and surgery duration showed a meaningful relationship. Patients with lower

education and health condition assessments reported higher satisfaction levels.[13,27,28]

Overall, the average patient satisfaction with anesthesia services at Dr. Hasan Sadikin General Hospital was 78.11%, which is categorized as good. This value is higher than studies at Dr. Soetomo General Hospital (77.5%) and Shardaben General Hospital, India (76.5%), but still slightly lower than studies at Cipto Mangunkusumo General Hospital (79.27%).[11–14]

This study has several strengths. First, it used a validated and internationally recognized instrument, the ASA–recommended questionnaire, which allows comparison with other studies. Second, the use of proportionate stratified random sampling improved the representativeness of the sample and reduced selection bias. Third, the relatively large sample size (n=384) enhances the reliability and generalizability of the findings within similar tertiary hospital settings.

This study has several limitations. First, the use of an online questionnaire may introduce selection bias by excluding patients with limited digital literacy or access to electronic devices. Second, responses may be influenced by social desirability bias, where patients tend to provide favorable responses due to perceived expectations. Third, excluding patients with major complications may limit the generalizability of the findings to all surgical populations. Fourth, the cross–sectional design limits causal interpretation of factors associated with patient satisfaction. Future studies should include broader patient populations and use mixed–mode data collection methods.

Conclusion

Patient satisfaction with anesthesia services was generally high across all evaluated domains. These findings indicate that anesthesia services meet recommended quality standards. Continued monitoring and quality improvement efforts are necessary to enhance patient–centered anesthesia care further.

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