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Original Research

Determinant Factors of Patient Satisfaction in the Orthopedic Surgery Ward

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ABSTRACT

Background: *Patient satisfaction is a crucial measure of health service performance. The fluctuations in this level of accomplishment can serve as empirical evidence for developing quality and patient safety programs. This study seeks to assess and analyse demographic characteristics, the degree of patient satisfaction, and the relationship between respondent characteristics and satisfaction at three orthopedic surgery wards over a span of three time periods: 2021 to 2023.*

Methods: *This study employs a quantitative research methodology adopting a descriptive comparative technique. The independent variables of this study were time period, quality dimensions, and patient characteristics. The dependent variable of this study was patient satisfaction. The data were examined using Kruskal-Wallis's analysis, the central tendency, and multiple regression analysis.*

Results: *The study showed that the level of patient satisfaction has increased every year (p-value = 0.005), with no significant difference between the three wards (p-value = 0.893). Also, there is no significant correlation with patient satisfaction for each year (p-value > 0.05). Nevertheless, the findings of this study indicate that age significantly influences patient satisfaction in 2021 (p-value = 0.021) and 2023 (p-value = 0.007).*

Conclusion: *It is recommended this research be expanded by exploring other patient characteristic variables and exploring the key elements that significantly influence patient satisfaction in many patient care settings.*

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INTRODUCTION

Patient satisfaction is an important factor in health services because it reflects the fulfilment of their hopes and desires to receive health services (Rosyidi et al., 2020). Patient satisfaction is an important factor in health services because it reflects the fulfilment of their hopes and desires to receive health services. Patients expect services to be prepared, expedient, receptive, and agreeable to address their concerns. The objectives of surveying patient satisfaction are identifying issues in the consumption of health

services, identifying factors that predict future health behaviour, and assessing individuals' willingness to refer their healthcare provider to others.

Even though patients may not be able to assess certain technical aspects, they provide the best source of accurate information regarding technical and administrative requirements for services, service procedures, completion time, service fees/rates, product specifications, types of services received by patients in accordance with established provisions, executive/officer competency, behaviour/attitudes of officers in providing services, handling complaints, and infrastructure available at the hospital (Regulation of the Minister for Empowerment of State Apparatus and Bureaucratic Reform Number 14 of 2017).

According to a previous study (Irawan & Sitanggang, 2020) the assessment of patient satisfaction with the quality of hospital services in March 2020 indicated that patients were generally "satisfied". However, there were still some negative or "dissatisfied" ratings specifically related to the responsiveness aspect. In addition, research shows that 96.4% of patient satisfaction is influenced by interactions with health facilities and the convenience of public facilities in Ethiopia (Asamrew et al., 2020). Research at a Southeast Sulawesi hospital found an average level of patient satisfaction of 75.99 (±11.28), with the highest level of satisfaction in competence (78.25 ±13.48) and the lowest in handling complaints, suggestions, and input (73.90 ±14.01) (Mutiarasari et al., 2021). Patient satisfaction in private hospitals is higher than in public hospitals for all categories.

An initial survey conducted in three orthopedic surgery patient wards at a hospital revealed patient satisfaction was regularly evaluated using the Community Satisfaction Index survey. The findings indicated a high level of satisfaction among the inpatients. However, no studies have been conducted to analyse the satisfaction levels of inpatients in three different inpatient wards across three specific time periods and identify the key elements that influence their satisfaction. This research is crucial for management to formulate service quality enhancement initiatives. It has been argued that it is essential to conduct research on patient satisfaction levels in an agency at regular intervals, with precision and consistency (Sondari & Bambang, 2017).

Patient satisfaction, which strongly correlates with service quality and consumer loyalty, is a crucial measure of the success of health services. Regularly monitoring the quality of health services involves comparing levels of patient satisfaction. However, there is a lack of comprehensive studies that systematically compare patient satisfaction across different periods. This limitation hampers the ability to use fluctuations in patient satisfaction as evidence-based practice for designing and improving service quality and patient safety programs. The objective of this study was to assess and analyze patients' satisfaction levels at an orthopedic surgery facility over a three-year period (2021-2023) and also identify the key aspects that significantly influence patients' satisfaction.

MATERIALS AND METHODS

The study was conducted in an Indonesian hospital with Level One Health Facilities in Surakarta. This research uses a descriptive correlational method to examine the relationship between respondent characteristics (age, gender, education, and length of stay) and satisfaction levels each year. Additionally, it utilises a descriptive comparative approach to compare the satisfaction levels of patients in three third-class inpatient wards with the characteristics of a modular service method, which includes one room with a capacity for two patients and central air conditioning facilities.

The total number of respondents was 900. The inclusion criteria consisted of individuals who had been hospitalized for a minimum of two days, were conscious at the time of participation, had undergone bone surgery, had the ability to read and write, and expressed their willingness to participate in the research. This study used accidental sampling, which involved distributing questionnaires to eligible patients at the time of discharge. The research instrument comprised a patient demographic questionnaire and a standardised hospital satisfaction questionnaire, which was adapted by the researcher for the purpose of this study.

The instrument was tested to assess its validity and reliability, specifically to evaluate the consistency and accuracy of the items included in the instrument. The instrument developed was a questionnaire on 4 demographic characteristics of respondents, including age, gender, educational background, and length of stay, as well as a questionnaire on patient satisfaction assessment in terms of five dimensions, namely Tangible, Reliability, Responsiveness, Assurance, and Empathy. Tangible dimension questionnaire items describe the patient's assessment of everything that can be directly seen and felt, such as cleanliness, orderliness, comfort of physical facilities (treatment rooms, parking), and neatness of appearance of staff.

Reliability dimension questionnaire items provide an overview of the patient's assessment of the hospital's reliability in providing accurate and reliable services, such as the accuracy of registration and cashiers and the ability and accuracy of all staff. The Responsiveness dimension questionnaire items provide an overview of the customer's assessment of the speed of service provided by all hospital staff according to their profession/field. The Assurance dimension questionnaire items provide an overview of the patient's assessment of the knowledge, courtesy, and ability of officers who are convincing and reliable in providing service care. The empathy dimension questionnaire item provides an overview of the patient's assessment of individual attention to patients, such as knowing the patient and his or her needs and providing information in a language that is easy for each patient to understand.

In this study, four Likert scales were used to measure the respondents' level of agreement or rating of the questionnaire items, where score (4) means very good or excellent, score (3) means good, score (2) means less good, and score (1) means not good or poor. The score's conclusion is satisfactory. The range of scores considered as highly satisfied is from 88.31 to 100.00. Scores between 76.61 and 88.30 are considered as satisfied. Scores between 65.00 and 76.60 are considered as not satisfied. Scores between 25.00 and 64.99 are considered highly unsatisfactory. The results of the instrument reliability test indicate reliability and consistency, as evidenced by a Cronbach's Alpha value of 0.649 (> 0.60). Additionally, the validity test results demonstrate that all instrument question items have a Corrected Item-Total Correlation value exceeding the R table threshold of 0.095, confirming their validity.

Data analysis in this study used the Central Tendency test to describe respondents and the Kruskal Wallis test to determine patient satisfaction differences each year between the three wards. The association between respondent characteristics and satisfaction each year was analysed using the Chi-Square test, while the Multiple Regression test examines the most influential factors among age, gender, education, and length of care on the dimensions of satisfaction each year. Ethical clearance was obtained from the Health Research Ethics Commission (KEPK) of the Faculty of Medicine, Universitas Muhammadiyah Surakarta, under reference number 4966/B.1/KEPK-

FKUMS/X/2023. The research utilised patients' satisfaction data spanning three years, from 2021 to 2023.

RESULTS

Description of respondent characteristics

Table 1. Description of Respondent Characteristics Along Three Year

Year	Characteristics	n = 300		Mean±Standard Deviation
2021	**Age (years old)**	n	%	40.49±16.27
	<40	156	52.00	
	40-60	101	33.67	
	>60	43	14.33	
	Total	300	100.00	
	Sex			
	Male	206	68.67	
	Female	94	31.33	
	Total	300	100.00	
	Educational Background			
	Elementary school	76	25.42	
	Junior High School	50	16.72	
	High school	139	46.49	
	College	34	11.37	
	Total	300	100.00	
	Length of Stay			5.49±2.35
	≤ 5 days	229	76.63	
	> 5 days	71	23.67	
	Total	300	100.00	
2022	**Age (years old)**	n	%	42.65±16.93
	<40	147	49.00	
	40-60	99	33.00	
	>60	54	18.00	
	Total	300	100.00	
	Sex			
	Male	166	55.33	
	Female	134	44.67	
	Total	300	100.00	
	Educational Background			
	Elementary school	80	26.67	
	Junior High School	54	18.00	
	High school	134	44.67	
	College	32	10.67	
	Total	300	100.00	
	Length of Stay			5.54±1.97
	≤ 5 days	225	75.00	
	> 5 days	75	25.00	
	Total	300	100.00	
2023	**Age (years old)**	n	%	44.43±19.08

Year	Characteristics	n = 300		Mean±Standard Deviation
	<40	128	42.67	
	40-60	116	38.67	
	>60	56	18.67	
	Total	300	100.00	
	Sex			
	Male	165	55.00	
	Female	135	45.00	
	Total	300	100.00	
	Educational Background			
	Elementary school	74	24.75	
	Junior High School	56	18.73	
	High school	141	47.16	
	College	28	9.36	
	Total	300	100.00	
	Length of Stay			5.39±2.30
	≤ 5 days	224	74.67	
	> 5 days	76	25.33	
	Total	300	100.00	

The result showed that more than half of patients in 2021 were under the age of 40, corresponding to 52.00% of the total. Male patients accounted for the greatest percentage (68.67%) in 2021. 46.49% of the patients surveyed had completed high school as their highest level of education, and 76.63% of the hospital visits lasted for 5 days or less. In 2022, nearly half of patients were under the age of 40, accounting for 49.00% of the total. More than half of the patients were male, accounting for 55.33% of the total.

Most of the patients had completed high school (44.67%), and most of their hospital stays were 5 days or less (75.00%). By 2023, 42.67% were under 40. Most patients were male, accounting for 55.00% of the total. The prevalent level of education among patient respondents was high school grades, representing 47.16% of the sample. Additionally, most of the hospital stays lasted for a duration of five days or less, including 74.67% of the cases (table 1).

Patient satisfaction differences across the three wards over three years

A test was carried out to analyze differences in patients' satisfaction concerning ward factors over three years. Based on the test results, it was observed that the dependent data did not follow a normal distribution and exhibited homogeneous variance. Therefore, the following analysis utilized the Kruskal-Wallis test for further examination.

Table 2. Kruskal Wallis Test Average Patient Satisfaction for Each Ward along Three Years

Ward	n	Mean Rank	Mean	Std. Deviation	Minimum	Maximum	Kruskal-Wallis H	df	Asymp. Sig
1	300	453.40	87.4500	7.24277	57.55	99.00	0.226	2	0.893
2	300	453.39							
3	300	444.72							

Table 2 describes the differences in patient satisfaction among the three wards. The value of asymp. sig. is 0.893, which exceeds the alpha level of 5%. Therefore, it can be concluded that there is no significant difference between patient satisfaction in the first ward (A Orchid ward), second ward (B Orchid ward), and third ward (Bougainville ward).

Association between respondent characteristics and satisfaction each year

Table 3. Chi - Square Test Results between Respondent Characteristics and Annual Satisfaction

Year	Independent Variable Respondent Characteristics	p-value
2021	Age	0.117
	Gender	0.229
	Educational Background	0.268
	Length of Stay	0.144
2022	Age	0.700
	Gender	0.650
	Educational Background	0.839
	Length of Stay	0.501
2023	Age	0.106
	Gender	0.618
	Educational Background	0.931
	Length of Stay	0.742

Table 3 displays the results of bivariate analysis using the Chi-Square test, indicating that the association between respondent characteristics and annual satisfaction is not statistically significant (p-value > 0.05). The author categorized respondent satisfaction based on the average satisfaction each year. In 2021, with an average value of 86.63 ± 6.34, satisfaction was categorized as follows: Code 0 for values ≤86.63 and Code 1 for values >86.63. In 2022, with an average value of 87.43 ± 7.43, satisfaction was categorized as Code 0 for values ≤ 87.43 and Code 1 for values > 87.43. For 2023, with an average value of 88.28 ± 7.79, satisfaction was categorized as Code 0 for values ≤88.28 and Code 1 for values >88.28.

Influence of demographic factors on patient satisfaction each year

The author conducted multiple linear regression analyses to determine the demographic factors of respondents that were significantly associated with patient satisfaction. The demographic factors tested were age, gender, educational background, and length of stay. Multiple regression analyses were conducted three times, specifically in 2021, 2022, and 2023, as follows:

Table 4. Simultaneous Parameter Test Results of the Influence of Demographics on Satisfaction Three Years

Year	Model		Sum of Squares	df	Mean Square	F	Sig.
2021	1	Regression	583.328	4	145.807	2.696	0.031
		Residual	15955.772	295	54.087		
		Total	16538.999	295			
2022	1	Regression	34.802	4	8.700	0.214	0.0931[a]
		Residual	11998.547	295	40.673		

Year	Model		Sum of Squares	df	Mean Square	F	Sig.
		Total	12033.349	295			
2023	1	Regression	608.814	4	152.203	2.556	0.039[a]
		Residual	17569.899	295	59.599		
		Total	18178.712	295			

We conducted two parameter tests, a simultaneous parameter test, and a partial parameter test. According to the ANOVA table (Table 4), the results of the simultaneous parameter test in 2021 indicated a Sig. value of 0.031, which is less than alpha (5%). So, it can be concluded that at least one of the four respondent demographics (age, gender, education, and length of stay) has a significant association with patient satisfaction.

The results of the 2022 simultaneous parameter test indicated a Sig. value of 0.931, which exceeds alpha (5%). Consequently, it was concluded that none of the four respondent demographics (age, gender, education, and length of stay) had a significant influence on patient satisfaction, and the results of the 2023 simultaneous parameter test showed the Sig. value is 0.039; this value is less than alpha (5%), so it can be concluded that at least one of the four respondent demographics (age, gender, education, and length of stay) has a significant influence on patient satisfaction. Next, a further test, namely a partial parameter test, was conducted to determine which demographic variables influence patient satisfaction. The results are presented in the table below.

Table 5. Partial Parameter Test Results for the Influence of Demographics on Satisfaction Three Years

Year	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
			B	Std. Error	Beta		
2021	1	(constant)	83.594	2184		38.283	0.000
		Age	0.070	0.030	0.152	2.326	0.021
		Gender	1.845	0.950	0.116	1.942	0.053
		Educational Background	-.385	0.392	-.061	-.0983	0.326
		Length of Stay	-.011	0.188	-.004	-.060	0.952
2022	1	(constant)	86.150	2.006		42.953	.000
		Age	.000	.024	.001	.014	.989
		Gender	.271	.750	.021	.362	.718
		Educational Background	.085	.340	.016	.250	.803
		Length of Stay	.163	.191	.051	.857	.392
2023	1	(constant)	95.395	2.397		39.797	0.000
		Age	-0.071	0.026	-0.175	-2.7036	0.007
		Gender	-0.349	0.922	-0.022	-0.378	0.0706
		Educational Background	-1.081	0.430	-.159	-2.513	0.013
		Length of Stay	-0.193	0.195	-.057	-0.990	0.323

Table 5 displays the results of the partial parameter test as depicted in the Coefficients Table above. It indicated that the age variable has a Sig. value less than alpha

(5%), suggesting that age influenced patient satisfaction in 2021. However, the Sig. values for the three variables, namely gender, education, and length of stay, are greater than alpha (5%), indicating that these variables do not significantly influence patient satisfaction.

Likewise, in 2023, the age and education variables had a Sig. value less than alpha (5%), indicating that both age and education significantly influence patient satisfaction. Conversely, the variables gender and length of stay have a Sig. value greater than alpha (5%), suggesting that gender and length of stay do not significantly influence patient satisfaction. On the other hand, in 2022, there were no variables that significantly influenced patient satisfaction because all Sig. values were more than alpha (5%).

Table 6. Model Summary of Satisfaction in Three Years

Year	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2021	1	0.188[a]	0.035	0.022	7.35441
2022	1	0.054a	0.003	-0.011	6.37754
2023	1	0.183a	0.033	0.020	7.71745

predictors: (Constant), age, gander, education,duration of stays in hospital

Based on Table 6, the 2021 R-squared value was 0.035 or 3.5%. This means age only influences 3.5% of patient satisfaction. The remaining 96.5% is influenced by other variables not measured in the model. The R-squared value is notably small, suggesting that there are numerous other variables beyond the demographic factors examined in this study that influence respondent satisfaction.

In 2022, the R-squared value is 0.003 or 0.3%. This implies that age only accounts for approximately 0.3% of the variance in patient satisfaction. The remaining 99.7% is influenced by other variables not measured in the model. The small R-square value indicates that the model explains only a small portion of the variability in patient satisfaction.

The ANOVA table (Table 5) clearly states that no variables significantly influence satisfaction. While in 2023, the R-squared value was 0.033 or 3.3%. This indicates that age only accounts for 3.3% of the variance in patient satisfaction. The remaining 96.7% of the variance is influenced by other variables not included in the model. The small R-square value suggests that there are many other variables beyond the demographic factors examined in this study that influence respondent satisfaction.

DISCUSSION

This study revealed a notable increase in inpatient satisfaction levels over a span of three years. This improvement may be attributed to enhancements in hospital services, including upgraded facilities and intensified staff training, alongside the implementation of new policies aimed at addressing patient needs more effectively. Moreover, the growing awareness among communities about their rights could also have catalyzed improvements in service standards. corrected as directed by the reviewer.

The analysis reveals no significant difference in patient satisfaction among the three wards. The first ward corresponds to the A Orchid ward, the second ward to the B Orchid ward, and the third ward to the Bougainville ward. Interestingly, the first and second wards exhibit minimal variance, whereas both wards show larger disparities when compared to Ward 3.

This finding aligns with the setup where the A Orchid and B Orchid wards are housed within a single large ward, while the Bougainville ward operates independently. Furthermore, the A Orchid and B Orchid wards primarily accommodate third-class inpatients, whereas the Bougainville ward serves both third- and second-grade inpatients. These distinctions in type and location likely contribute to the observed differences in patient satisfaction.

The findings of this study suggest an association between patients' age and their level of satisfaction. This implies that the hospital has effectively tailored its services to address the specific needs of different age groups, thereby resulting in higher satisfaction levels. These results are consistent with a study conducted by Alharbi et al., (2023) which identified patient age as the most significant factor influencing satisfaction.

Similarly Adhikari et al., (2021) reported that age emerged as the strongest predictor of patient satisfaction across various dimensions. Additionally, it was found that age factor positively influences the relationship between trust in physicians and both hospital admissions and patient satisfaction, ultimately leading to increased engagement in healthcare and reduced healthcare costs (Katz et al., 2023). Another finding is that demographic factors such as gender, education, and duration of stays in the hospital are not related to satisfaction. The homogeneity and relatively small number of samples may also influence the results of the analysis in this study.

A possible explanation for the lack of demonstrated effect is that the patient group was too homogeneous. This homogeneous patient group means that variations in patient characteristics, such as gender, education, and duration of stays in the hospital, are not significant enough to influence the overall level of satisfaction. In other words, similarities in patient demographic characteristics may make individual differences invisible in satisfaction analyses.

This implies that factors beyond demographics, such as service quality or interactions with medical staff, exert a greater influence on patient satisfaction. The study by Rashad et al., (2023) which investigated the relationship between gender and patient satisfaction in tertiary hospitals and found no evidence of a relationship, confirmed this. This indicates that both male and female participants were equally likely to report high, medium, or low levels of satisfaction. However, this is likely due to the small sample size. A limited sample size may not be sufficient to capture significant differences between gender groups in terms of patient satisfaction.

Concerning education level, a meta-analysis conducted by Munawarah, Arifin, and Febriana, (2023) elucidated that patients with a higher level of education exhibited a slightly higher likelihood of satisfaction, although the variance was not statistically significant. The results of meta-analyses of these studies may have a disproportionate influence on the overall findings and should be evaluated carefully for potential sources of bias that could undermine the validity of the results. Careful evaluation is necessary to ensure that no other factors unfairly influence the results and that the conclusions drawn truly reflect the relationship between education level and patient satisfaction.

The findings regarding the relationship between the duration of hospitalisation and patient satisfaction in this study align with the research conducted by Friganović et al., (2018) which concluded that patients with shorter stays (defined as stays of no more than five days) did not exhibit greater satisfaction with conditions in the ICU compared to those who stayed longer than five days. This shows that the duration of hospitalisation in the ICU does not significantly influence the level of patient satisfaction. Both short- and long-stay patients reported similar levels of satisfaction, indicating that fac-

tors other than length of stay may play a greater role in determining patient satisfaction in the ICU.

CONCLUSION

The results of the analysis of descriptions of patient characteristics show that the majority of patients as respondents in 2021-2023 are less than 40 years old, male, have a high school education, and have a length of stay (LOS) of less than 5 days. This study concludes that there is a notable increase in the level of inpatient satisfaction annually over a three-year period. The number of patients who have a satisfaction level of Very Satisfied increased every year; also, the percentage of satisfaction levels of Less Satisfied and Not Satisfied increased in 2023.

Bivariate analysis indicated no association between respondent characteristics such as gender, education, and length of stay with patient satisfaction levels over three years. However, multivariate analysis in 2021 revealed a significant relationship between age and patient satisfaction; also, in 2023 it showed that age and education variables influence patient satisfaction. Hospital management is expected to be able to create quality improvement programs by developing a program focusing on other patient characteristic variables than those analyzed in this study.

In addition, there is a need for continuous evaluation and improvement of service quality to ensure patient satisfaction continues to increase every year. Further investigation of how age and educational background influence patient satisfaction is also recommended to design more effective service strategies. It is recommended that this research be expanded by exploring patient characteristic variables that have not been examined in this study. Further studies can be carried out to explore the dimensions of satisfaction that influence the level of patient satisfaction.

Apart from that, the results of this research can be a reference for future researchers to conduct studies related to the determinants of patient satisfaction in a more specific and in-depth manner in patient care settings outside of inpatient services, in accordance with developments in community satisfaction values.

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