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An Analysis of Service Quality Dimension in Relation To Patient Satisffaction and Loyalty in The Emergency Department of Ciputra Hospital Surabaya

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Abstract: Service quality is a crucial aspect in determining patient satisfaction and loyalty, particularly in the Emergency Department (ED), which serves as the frontline of a hospital. This study aims to evaluate the influence of the five service quality dimensions—tangibles, reliability, responsiveness, assurance, and empathy—on patient satisfaction and loyalty in the Emergency Department of Ciputra Hospital Surabaya. This study has a sample size of 84 respondents. The method in this research is quantitative, with analysis using Partial Least Square - Structural Equation Model (PLS-SEM). Data collection in this study used a research instrument in the form of a Google Form. This study shows that service quality has a positive and significant effect on loyalty in the emergency room of Ciputra Surabaya Hospital. Service quality has a positive and significant effect on satisfaction in the emergency room of Ciputra Surabaya Hospital. Satisfaction has a positive and significant effect on loyalty in the emergency room of Ciputra Surabaya Hospital. Service quality also has a positive and significant effect on loyalty in the emergency room of Ciputra Surabaya Hospital through satisfaction as a mediating variable.

Keywords: Service Quality, Patient Satisfaction, Patient Loyalty, Emergency Department, Ciputra Hospital Surabaya

INTRODUCTION

Healthcare is a fundamental element in the public service system that significantly affects the well-being of society. Health is not only a basic need for every individual but also a key asset in carrying out daily activities and contributing to a country's social and economic development (Ariyanti et al., 2024). In Indonesia, hospitals, as one of the crucial components in the health sector, bear a major responsibility in providing comprehensive and high-quality medical services in accordance with the provisions of Law No. 44 of 2009 concerning Hospitals.

In the context of hospital services, the Emergency Department (ED) holds a highly strategic position as it serves as the main gateway for patients with both emergency and non-emergency conditions. The ED demands a rapid response, high-level skills, and optimal preparedness from medical personnel, particularly doctors and nurses, to deliver safe and

effective care (Mamengko et al., 2021). Therefore, the quality of service in the ED plays a crucial role in shaping the initial experience that influences patients' overall perception of the hospital.

High service quality is believed to contribute significantly to patient satisfaction and loyalty. Good service not only accelerates the patient's recovery process but also builds a positive image of the hospital, encouraging patients to return for future services (Engga & Farida, 2025). In addition, high-quality service can enhance satisfaction, which in turn fosters patient loyalty and generates word-of-mouth promotion (Jen & Bachtiar, 2023).

According to the SERVQUAL theory, service quality can be measured through five main dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These five dimensions serve as important indicators in assessing the extent to which healthcare services can meet patients' expectations (Ahadi & Sudaryana, 2024).

High patient satisfaction not only reflects a hospital's success in delivering services but also serves as a key factor in fostering patient loyalty (Sitepu & Kosasih, 2024). This loyalty is characterized by the patient's willingness to return to the same hospital for future services and to recommend it to others. Therefore, in facing the competitive landscape of healthcare services, hospitals must continuously maintain and improve the quality of their services. Ciputra Hospital Surabaya, as one of the leading healthcare institutions in Surabaya, has demonstrated its commitment to providing high-quality healthcare services. With modern facilities, professional medical personnel, and an Emergency Department that stands out as one of its key strengths, the hospital consistently strives to enhance patient satisfaction and loyalty through ongoing innovation and evaluation

METHOD

This study is classified as explanatory research, aiming to explain the causal relationships between the variables under investigation. A cross-sectional approach is employed, in which data is collected at a single point in time. The data were analyzed quantitatively to examine correlations among the three main variables: service quality, patient satisfaction, and patient loyalty. The research was conducted at Ciputra Hospital Surabaya, a private hospital under the Ciputra Group. The hospital is located at Jl. West Radial Road CF-6, Made, Sambikerep District, Surabaya, East Java. The type of data used in this research is subject data (self-report data), which consists of experiences, characteristics, and perceptions directly reported by the respondents. The data source is primary data, obtained directly through questionnaires distributed to respondents using a Google Form link.

The population in this study includes all patients of the emergency department (ED) at Ciputra Hospital Surabaya. The sampling technique applied is purposive sampling, which involves selecting respondents based on specific criteria. The criteria include patients who have received ED services at Ciputra Hospital Surabaya in the last three months, are over 17 years old, conscious, and capable of completing the questionnaire accurately. Gender and social status are not considered in the sampling process. The questionnaire was distributed online to all patients who met the inclusion criteria, and a selection process was conducted to ensure the final respondents aligned with the predefined requirements.

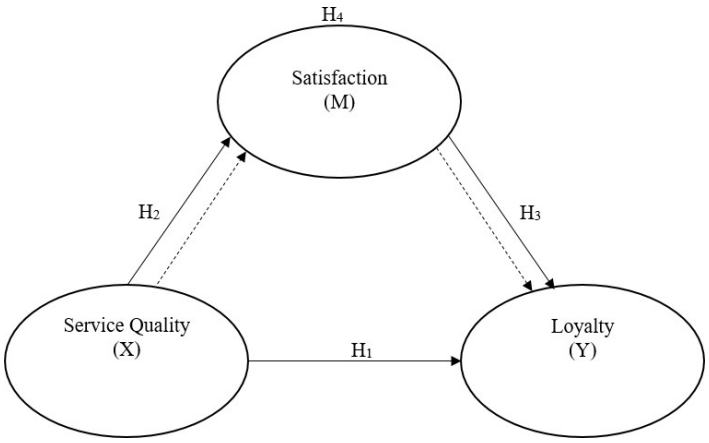
There are three main variables in this study: service quality, patient satisfaction, and patient loyalty. Each variable is represented by five indicators, resulting in a total of 15 indicators. The sample size was determined using Hair's rule, which states that in quantitative research based on Structural Equation Modeling (SEM), the sample size should be at least 5 to 10 times the number of indicators used in the research model. This study employed 15 indicators, thus the minimum required sample size was 75 respondents.

This research employs a quantitative approach, analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Data collection in this study used a research instrument in the form of a Google Form. Sampling in this study was based on specific criteria,

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including patients who had received treatment in the Emergency Department (ED) within the last three months. The targeted sample size ranged between 75 and 150 respondents. However, during the data collection process, 84 respondents were obtained who met the criteria.

The data collection method used is a structured questionnaire, which includes both closed and open-ended questions. Closed-ended questions are measured using an interval scale to assess the indicators of each variable, while open-ended questions are included to provide qualitative support that can be used for managerial insights.



Source: Research Results

Figure 1. Research Framework

RESULTS AND DISCUSSION

Most respondents were under 17 years old (23.8%), indicating that emergency department patients at Ciputra Surabaya Hospital were dominated by younger respondents. In terms of gender, the majority were female (53.6%), while the remaining 46.5% were male.

Outer Model

Data analysis in this study using SmartPLS is carried out by measuring the outer model by conducting a validity test and also a reliability test.

Validity Test

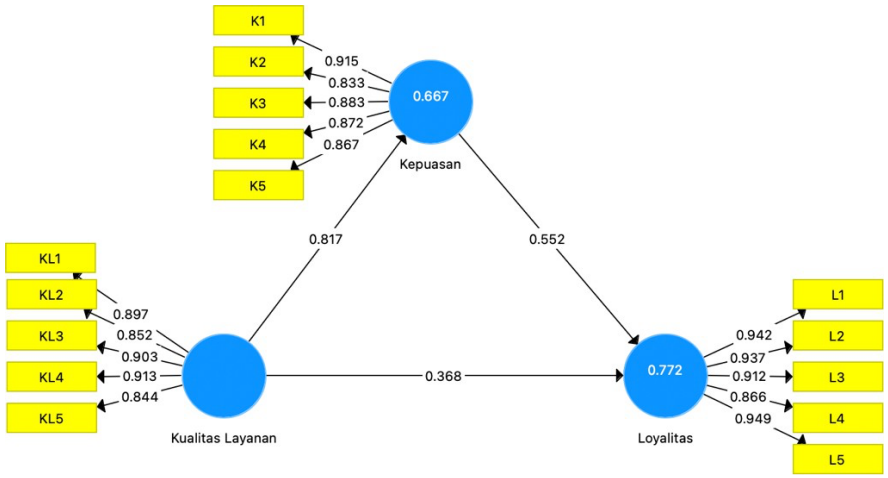
The validity test is divided into two, namely convergent validity and discriminant validity.

Convergent Validity

Convergent validity can be seen by looking for the outer loading value of each indicator and the Average Variance Extracted (AVE) value. Variables meet the convergent validity criteria if they have an outer loading value above 0.7 and an AVE value of at least 0.5.

Outer Loading

After calculating using the PLS algorithm, the outer loading value for each indicator is obtained. The initial model in this study can be seen in Figure 2.



Source: Data Processed
Figure 2: Initial Model with All Indicators

The loading factor in the model shows that each indicator has an outer loading value above 0.7 and has met the criteria so that all indicators can be said to be valid.

Average Variance Extracted (AVE)

After getting the outer loading value that matches the criteria, the validity test is continued by looking at the AVE value. Constructs can be declared good and accepted in the validity test if they have an AVE value above 0.5. The results of data processing show the AVE values of the service quality, satisfaction, and loyalty variables are 0.778, 0.765, and 0.850 whose values exceed 0.5 and show good convergent validity where latent variables can explain more than half of the variance of their indicators so that all variables can be said to be valid.

Discriminant Validity

Discriminant validity in this study is in the form of cross loading where the indicator is said to be valid if it has the highest loading factor on its latent variable compared to other latent variables. The results of data processing show that all indicators are valid because they have the highest loading factor on their latent variables compared to other latent variables.

Reliability Test

Composite Reliability

Composite reliability has a value of 0 to 1. Indicators can be declared reliable if they have a value equal to or greater than 0.6. Data processing shows the results of the composite reliability of service quality, satisfaction, and loyalty variables are 0.946, 0.942, and 0.966 whose values are greater than 0.6 so that the research questionnaire is declared consistent or reliable.

Cronbach's Alpha

The Cronbachs Alpha test shows an acceptable value if it gets a value above 0.6. Data processing shows the results of Cronbachs alpha of the service quality, satisfaction, and loyalty are 0.929, 0.923, and 0.956 whose values are greater than 0.6 so that this research questionnaire is declared consistent or reliable.

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Inner Model

$R^{(2)}$ (Coefficient of Determination)

The R-squared (R^2) test shows the overall explanatory power of the structural model. The R-Square value of 0.67 means strong or good, 0.33 means moderate or moderate, and 0.19 means weak. Data processing shows the results of the calculation of the R square test for the satisfaction and loyalty variables of 0.667, 0.772, which means that 66.7% of the satisfaction variable is influenced by service quality. As much as 77.2% of loyalty is influenced by service quality and satisfaction. The remaining 22.8% is influenced by other variables outside this study.

Path Coefficient

The path coefficient value indicates the direction and strength of the influence of variable X on variable Y. Positive and negative values describe the resulting negative or positive effect. The closer to 1, the stronger the path and vice versa, the closer to 0, the weaker. Based on data processing, it can be seen that the path coefficient shows a positive value, thus indicating that: Service quality has a positive effect on loyalty with a path coefficient value of 0.368. Service quality has a positive effect on satisfaction with a path coefficient value of 0.817. Satisfaction has a positive effect on loyalty with a path coefficient value of 0.552. Service quality has a positive effect on loyalty through satisfaction with a path coefficient value of 0.451.

Q-Square (Blindfolding)

The Q-Square (Blindfolding) test relates to the level of predictive relevance of the research model. If the value shown is> 0, it can be said that the value in the study has been reconstructed properly. Data processing states the results of the Q-Square test in this study, obtained the Q-Square value of the service quality, satisfaction, and loyalty is 0.475, 0.485, and 0.548 whose value is> 0 in each variable. This shows that the model under study has good predictive relevance.

F-Square (Effect Size)

F-Square is used to determine the goodness of the model. Based on the explanation related to the strength of the influence of exogenous variables and endogenous variables, the f-square values of 0.02, 0.15, and 0.35 are categorized as weak, moderate, and strong influence, respectively. Data processing shows the results of the f-square that shows the effect of service quality on satisfaction is large because it is above 0.35. The effect of service quality on loyalty is moderate as it is above 0.15. The effect of satisfaction on loyalty is large because it is above 0.35.

Hypothesis Testing

Hypothesis testing is carried out to determine the significance of the research hypothesis. The variable is declared good and significant if it has a t test value above 1.96.

Table 1. Hypothesis Test Results (t Test)

Hypothesis		*T-Statistics* (\O/STDEV)	Hypothesis Test
H_1	Service Quality - Loyalty	2,844	Accepted
H_2	Service Quality - Satisfaction	18,832	Accepted
H_3	Satisfaction - Loyalty	4,036	Accepted
H_4	Service Quality - Satisfaction - Loyalty	4,084	Accepted

Source: Data Processed

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Data processing shows the results of this study indicate that the service quality variables on loyalty has a value of 2.844 and is a significant and positive result because it has a value> 1.96 so it can be concluded that hypothesis 1 is accepted. The effect of service quality variables on satisfaction has a value of 18.832 and is a significant and positive result because it has a value> 1.96 so it can be concluded that hypothesis 2 is accepted. The effect of the satisfaction variable on loyalty has a value of 4.036 and is a significant and positive result because it has a value> 1.96 so it can be concluded that hypothesis 3 is accepted. The effect of service quality on loyalty through satisfaction as a mediating variable has a t-value of 4.084 and is significant and positive because it has a value> 1.96 so it can be concluded that hypothesis 4 is accepted.

The Effect of Service Quality on Loyalty

Based on the results of hypothesis testing, it can be seen that the service quality variable has an influence on loyalty. This is also in accordance with research conducted by Yum and Yoo (2023); Nguyen et al., (2021) where their research provides results that service quality has a significant and positive effect on loyalty. This means that if the company is able to provide good service quality through service accuracy, employee friendliness, and facility comfort, it can increase customer loyalty. The results of this study indicate that the first hypothesis (H1) which states that service quality has a significant effect on loyalty is accepted and in accordance with previous research that supports this research.

The results of this study are also supported by previous research conducted by Singh et al., (2023); Ulucayli et al., (2023) which states that service quality affects loyalty, where good service can increase consumer desire to continue using the same service. This is appropriate and in line with this study, where the higher the quality of service felt by patients, the greater the loyalty formed. In the phenomenon experienced by patients of the Emergency Room of Ciputra Surabaya Hospital, when patients feel comfortable physical facilities such as waiting rooms, medical equipment, and room cleanliness, services provided in accordance with expectations, medical personnel who quickly respond to patient needs, trust in the ability of medical personnel, and sincere attention from medical personnel to the patient's condition, then this is able to encourage increased patient loyalty to the hospital. With good service quality, patients tend to continue to choose Ciputra Hospital Surabaya IGD, are willing to recommend to others, and return to use services in the future.

Patients feel that if the services provided by the Emergency Room of Ciputra Surabaya Hospital are in accordance with expectations and show sincere concern, then patients tend to be more loyal to the hospital. Furthermore, if patients feel confident in the ability of medical personnel and feel the comfort of existing facilities, patient loyalty will increase. This is related to the characteristics of respondents, most of whom are less than 17 years old and female, where this group prioritizes safety, comfort, and care from medical personnel in the service process. With these conditions, respondents have a tendency to continue to choose Ciputra Surabaya Hospital Emergency Room services.

The Effect of Service Quality on Satisfaction

Based on the results of hypothesis testing, it can be seen that the service quality variable has an influence on satisfaction. These findings are consistent with those of Yum and Yoo (2023) and Nguyen et al. (2021), who found that service quality has a significant and positive effect on satisfaction. This means that if the company is able to provide good service quality through service accuracy, response speed, friendly attitude of medical personnel, and comfortable facilities, it can increase customer satisfaction. The results of this study indicate that the second hypothesis (H2) which states that service quality has a significant effect on satisfaction is accepted and in accordance with previous research that supports this research.

The results of this study are also supported by previous research conducted by Huang and Kim (2023); Septivianto and Sarwoko (2024) which states that service quality affects

satisfaction, where the better the service provided, the higher the level of customer satisfaction. This is appropriate and in line with this study, where the higher the quality of service felt by patients, the greater the satisfaction formed. In the phenomenon experienced by patients of the Emergency Room of Ciputra Surabaya Hospital, when patients feel comfortable physical facilities such as waiting rooms and cleanliness, services provided in accordance with expectations, medical personnel who are quick to respond to patient needs, a sense of trust in the ability of medical personnel, and sincere attention from medical personnel to the patient's condition, this can increase patient satisfaction. With good service quality, patients feel their needs are met, service expectations are achieved, and ultimately create a higher level of satisfaction with the hospital.

Patients feel that if the physical facilities of the Emergency Room of Ciputra Surabaya Hospital are comfortable and have good service, then patients tend to feel satisfied with the services received. Furthermore, if patients feel confident in the ability of medical personnel, the level of patient satisfaction will increase. This is related to the characteristics of respondents, most of whom are less than 17 years old and female, where this group is more sensitive to service quality, facility comfort, and the friendly and caring attitude of medical personnel. With these conditions, respondents have a positive service experience and can then increase satisfaction.

The Effect of Satisfaction on Loyalty

Based on the results of hypothesis testing, it can be seen that the satisfaction variable has an influence on loyalty. This is also in accordance with research conducted by Yum and Yoo (2023); Nguyen et al., (2021) where their research provides results that satisfaction has a significant and positive effect on loyalty. This means that if the company is able to create satisfaction through good service quality, fulfillment of needs, and a pleasant service experience, it can increase customer loyalty. The results of this study indicate that the third hypothesis (H3) which states that satisfaction has a significant effect on loyalty is accepted and in accordance with previous research that supports this research.

The results of this study are also supported by previous research conducted by Singh et al., (2023); Septivianto and Sarwoko (2024) which states that satisfaction affects loyalty, where the higher the level of consumer satisfaction, the greater the tendency to remain loyal to use the same product or service. This is consistent and in line with this study, where the higher the satisfaction felt by patients, the greater the loyalty formed. In the phenomenon experienced by patients of the Emergency Room of Ciputra Surabaya Hospital, when patients feel that their level of satisfaction with the hospital has increased after receiving services, getting services that are in line with expectations, having a positive experience, and feeling the professionalism and good quality of medical treatment from medical personnel, this can encourage patient loyalty. Patients who feel satisfied will tend to return to use emergency room services, recommend them to others, and continue to choose the hospital even though there are other alternatives.

Patients feel that if the services provided are in line with expectations, then patients tend to show high loyalty. Furthermore, if patients are satisfied with the professionalism of medical personnel and the quality of medical treatment provided, patient loyalty will increase. This is related to the characteristics of respondents, most of whom are less than 17 years old and female, where this group tends to build emotional bonds more easily if they are satisfied with the services received. With these conditions, respondents are willing to return to use the emergency room services of Ciputra Surabaya Hospital in the future.

The Effect of Service Quality on Loyalty Through Satisfaction

Based on the results of hypothesis testing, it can be seen that there is an effect of service quality on loyalty through satisfaction as a mediating variable. This is also in accordance with research conducted by Yum and Yoo (2023); Nguyen et al., (2021) where their research

provides results that service quality affects loyalty through satisfaction. When a company is able to provide good service quality, such as service timeliness, employee friendliness, and facility comfort, it will increase customer satisfaction which in turn can encourage the formation of loyalty. The results of this study indicate that the fourth hypothesis (H4) which states that service quality has a significant effect on loyalty through satisfaction is accepted and in accordance with previous research that supports this research.

The results of this study are also supported by previous research conducted by Singh et al., (2023); Septivianto and Sarwoko (2024) which states that service quality affects loyalty through satisfaction, where satisfaction acts as a mediating variable in strengthening the relationship between service quality and loyalty. This is appropriate and in line with this study, where the higher the quality of service felt by patients, the greater the level of satisfaction which ultimately encourages the formation of loyalty. In the phenomenon experienced by patients of the Emergency Room of Ciputra Surabaya Hospital, when patients feel comfortable physical facilities, services that are in line with expectations, medical personnel who are quick to respond to needs, a sense of trust in the ability of medical personnel, and sincere attention to the patient's condition, this increases patient satisfaction. Satisfaction formed from these positive experiences ultimately encourages patients to return to using IGD services, recommend hospitals to others, leave positive reviews, and continue to choose the Ciputra Surabaya Hospital IGD even though there are other hospital alternatives.

Patients who find the physical facilities comfortable and the services aligned with expectations tend to report higher satisfaction with the services received. Furthermore, if the patient feels satisfaction, it will encourage patient loyalty to the hospital. This is related to the characteristics of respondents who are mostly less than 17 years old and female, where this group emphasizes more on comfort, security, and personal attention in health services. With these conditions, good service quality is able to create patient satisfaction, and the satisfaction that is formed ultimately increases loyalty to the Emergency Room of Ciputra Surabaya Hospital.

Implication of the Results

The results of this study indicate that service quality has an effect on satisfaction and loyalty so that in the future Ciputra Surabaya Hospital needs to maintain service quality factors by maintaining the comfort of the IGD physical facilities, ensuring services that are in accordance with patient expectations, increasing the speed of response of medical personnel, and strengthening trust in the competence of medical personnel in providing services. This is evidenced by the lowest mean statement, namely "Emergency room medical personnel show sincere concern for my condition" so that in the future Ciputra Surabaya Hospital should be able to increase personal attention from medical personnel, for example by providing empathic communication training, increasing caring attitudes, and ensuring that every patient feels heard and sincerely cared for during the service process.

The results of this study indicate that satisfaction affects loyalty so that in the future Ciputra Surabaya Hospital needs to maintain the satisfaction factor by continuing to improve the quality of medical services, providing experiences that match patient expectations, and maintaining the professionalism of medical personnel in every treatment. This is evidenced by the lowest mean statement, namely "I feel satisfied with the quality of medical treatment I received in the emergency room" so that in the future Ciputra Surabaya Hospital must be able to improve the quality of medical treatment through equipment upgrades, continuous training for medical personnel, and consistent application of service standards so that patients feel more satisfied and ultimately more loyal to the hospital.

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CONCLUSION

Based on the results of research and discussion related to the ability to influence service quality and satisfaction on loyalty, the conclusions that can be drawn from this study are service quality has a positive and significant effect on loyalty in the emergency room of Ciputra Surabaya Hospital. Service quality has a positive and significant effect on satisfaction in the emergency room of Ciputra Surabaya Hospital. Satisfaction has a positive and significant effect on loyalty in the emergency room of Ciputra Surabaya Hospital. Service quality also has a positive and significant effect on loyalty in the emergency room of Ciputra Surabaya Hospital through satisfaction as a mediating variable.

Ciputra Surabaya Hospital can improve service quality by ensuring that medical personnel in the Emergency Room (IGD) provide genuine attention to each patient's condition. This can be realized through increased empathy and interpersonal communication training for medical personnel so that patients feel more cared for emotionally and physically. In addition, hospital management can provide a periodic evaluation program to assess the level of patient satisfaction regarding the services of emergency room medical personnel. This effort is expected to build patient trust and loyalty to hospital services as a whole.

Ciputra Surabaya Hospital can increase satisfaction by improving the quality of medical treatment in the Emergency Department (IGD). This can be done through improving standard medical service procedures that are fast, precise, and in accordance with patient needs. In addition, there needs to be more intensive assistance from medical personnel during the handling process so that patients feel safe and receive optimal attention. Thus, patients will feel the better quality of handling so that the level of satisfaction with hospital services can increase.

From the results of existing research, suggestions that can be given after conducting this research are that future researchers are expected to use broader and more varied variables, so that the results obtained are more complex. This study also only examines three variables, namely service quality, satisfaction, and loyalty. There are other variables that can be included in this study such as repurchase intention, customer experience, and others. For future researchers, it is hoped that they can distribute questionnaires offline and go directly to the field so that they can find out the respondents' understanding of filling out the questionnaire and reduce errors in collecting information.

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APPENDIX

Table 2. *Outer Loading of* Research Indicators

Variable	Indicator	*Outer Loading*
Service Quality	KL1	0,897
	KL2	0,852
	KL3	0,903
	KL4	0,913
	KL5	0,844
Satisfaction	K1	0,915
	K2	0,833
	K3	0,883
	K4	0,872
	K5	0,867
Loyalty	L1	0,942
	L2	0,937
	L3	0,912
	L4	0,866
	L5	0,949

Source: Data Processed

Table 3. AVE of Research Variables

Variable	AVE
Service Quality	0,778
Satisfaction	0,765
Loyalty	0,850

Source: Data processed

Table 4. Cross Loading

Outer loading	Service Quality	Satisfaction	Loyalty
KL1	**0,897**	0,808	0,808
KL2	**0,852**	0,738	0,758
KL3	**0,903**	0,688	0,666
KL4	**0,913**	0,704	0,707
KL5	**0,844**	0,644	0,651
K1	0,804	**0,915**	0,852
K2	0,708	**0,833**	0,773
K3	0,701	**0,883**	0,694
K4	0,638	**0,872**	0,633
K5	0,700	**0,867**	0,747
L1	0,786	0,810	**0,942**
L2	0,733	0,782	**0,937**
L3	0,810	0,807	**0,912**
L4	0,632	0,687	**0,866**
L5	0,797	0,832	**0,949**

Source: Data processed (2025)

Table 5. Composite Reliability

Variable	*Composite Reliability* Value
Service Quality	0,946
Satisfaction	0,942
Loyalty	0,966

Source: Data processed

Table 6. Cronbachs Alpha

Variable	*Cronbach's Alpha* value
Service Quality	0,929

Satisfaction	0,923
Loyalty	0,956

Source: Data processed

Table 7. R^2

	R-Square
Satisfaction	0,667
Loyalty	0,772

Source: Data processed

Table 8. Path Coefficient of Research Variables

Hypothesis		***Original Sample* (O)**
H_1	Service Quality - Loyalty	0,368
H_2	Service Quality - Satisfaction	0,817
H_3	Satisfaction - Loyalty	0,552
H_4	Service Quality - Satisfaction - Loyalty	0,451

Source: Data processed (2025)

Table 9. Q-Square

Variable	**$Q^{(2)}$ (=1-SSE/SSO)**
Service Quality	0,475
Satisfaction	0,485
Loyalty	0,548

Source: Data processed

Table 10. F-Square

Variable	**Satisfaction**	**Loyalty**
Service Quality	2,007	0,198
Satisfaction		0,444

Source: Data processed