

# The Influence of Hospital Brand Image, Health Service Quality and Patient Satisfaction on Loyalty at Arosuka Regional Hospital

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## Abstract

This study examines the relationships among hospital brand image, healthcare service quality, patient satisfaction, and patient loyalty. A cross-sectional quantitative approach was employed, utilizing questionnaires distributed to 160 respondents. The proposed model was tested using Partial Least Squares-Structural Equation Modeling (PLS-SEM). The findings revealed significant and positive relationships between all variables, with the following results: brand image and loyalty (t-statistics 2.120, p-value 0.023 < 0.05), brand image and healthcare service quality (t-statistics 2.137, p-value 0.033 < 0.05), healthcare service quality and patient satisfaction (t-statistics 4.440, p-value 0.000 < 0.05), healthcare service quality and loyalty (t-statistics 2.472, p-value 0.014 < 0.05), and patient satisfaction and loyalty (t-statistics 7.448, p-value 0.000 < 0.05). The study highlights healthcare service quality and patient satisfaction as critical factors in enhancing patient loyalty. Therefore, hospitals are encouraged to continuously evaluate and improve their service quality to strengthen patient loyalty and maintain a competitive edge.

**Keywords:** Brand Image, Service Quality, Satisfaction, Loyalty.



## A. INTRODUCTION

Hospitals are one type of service industry in the health sector that creates a product or service. Hospital management aims to be able to realize health service products or services that meet the wishes and expectations of patients. Supported by population growth and increasing health problems, hospitals are trying to develop marketing strategies that improve the hospital's brand image, service performance, patient satisfaction and loyalty. The increasing number of hospitals will be a big challenge for hospital managers due to the fairly tight competition. Hospitals that have a good and quality brand image will survive (Karmita & Arman, 2021). The sales level of a company or in this case a hospital can be influenced by product quality, customer satisfaction, brand trust and brand image of a company (Wantara & Tambrin, 2019)

Brand image is seen as a belief and image that a patient has of a hospital. The good or bad view of a hospital depends on the image captured by a patient of the hospital. The brand image of the hospital also has an important role in business strategy planning in the health sector. This is considered because the brand image represents real or tangible aspects such as buildings, products and facilities available. The intangible aspect of the hospital brand image is the perception that patients have of the hospital. So that patients often produce their own picture of the brand image of a hospital based on the experience of health checks and treatment felt by the patient

(Liu & Zhao, 2021). A good hospital brand image will also encourage the hospital to create good service quality.

Efforts made by a hospital in offering services by providing the best service to each patient. Service quality is closely related to attitudes and service decisions in meeting patient expectations. Service quality means the ability of service providers to satisfy customers in an efficient manner so that they can improve their business performance. So that in the service sector, quality is an important element to meet customer benefits, relationships and satisfaction (Ramya et al, 2019).

Customer satisfaction is one of the most important marketing concepts where satisfaction of customer needs and desires is very important for the success of an organization (Alam & Yasin, 2022). In the context of hospital services, patient satisfaction is an important asset when using hospital services. This has an impact on the attitude of patients who will continue to use the services they have chosen and the attitude of telling others (word of mouth) about the experiences they have felt (Novianti, 2020).

It is a challenge for a hospital to provide optimal service, namely the differences in perceptions obtained by each customer. In order to realize consistent and increasing patient satisfaction, hospitals must be able to offer different services from other hospitals and take an approach to evaluating each existing service product. Maintaining customer satisfaction presents a major challenge to foster customer loyalty to want to use hospital services again (Abbas et al., 2023). Customer loyalty is the main result of marketing targets that are closely linked to customer expectation factors, perceptions of service quality and customer satisfaction. Customers must get the best service according to their expectations regarding the services provided by the hospital (Irawan et al., 2020).

Based on data from the Indonesian Health Profile in 2023, the number of hospitals in Indonesia reached 3,155 units, both government and private hospitals. This number consists of 2,636 general hospitals and 519 specialty hospitals (Sibuea & Hardhana, 2023). West Sumatra Province currently has 78 hospitals, consisting of 51 general hospitals and 26 specialty hospitals throughout the province of West Sumatra. In Solok Regency, there are 2 general hospitals and 2 specialty hospitals (Central Statistics Agency, 2023).

The number of health facilities available in both the public and private sectors also increases the need for health services. The research on general hospitals in this study was the Arosuka Regional General Hospital (RSUD). This hospital was chosen because it could improve the quality and service in terms of quality, human resources, and a good image in the eyes of the public so that it could reach more patients. Although Arosuka Hospital provides BPJS services, there are still many patient visits that do not use BPJS. Thus, this study is directed at general patients who do not use BPJS facilities. With the selection of general patients in this study, it is hoped that patient visit data will be purely based on the experience felt by the patient, not based on the health facilities that have been regulated in the BPJS system.

Arosuka Regional Hospital has been established since 2007, located in Solok Regency and holds the predicate of Type C Hospital. The preparation of the Strategic Plan (Renstra) has been carried out in 3 periods, namely the 2007-2011 Renstra, the 2011-2015 Renstra and the 2016-2020 Renstra in order to support and provide services. However, during that period, Arosuka Regional Hospital did not experience a satisfactory increase in service performance indicators, finance, and service development (Lasyera et al., 2018). The results of discussions with the Director of Arosuka Regional Hospital, the preparation of the Renstra only identified internal and external factors without further analysis, so it was still very simple and further evaluation was needed to improve hospital services to increase public or patient trust to visit the hospital. Based on the medical record data obtained, the number of patient visits can be seen in table 1 below:

**Table 1. Medical Record Data of Patient Visits at Arosuka Regional Hospital**

No.	Years	Number of Visits
1	2020	3.738
2	2021	3.678
3	2022	3.713

Source: Arosuka Regional Hospital Internal Data (2023)

Based on the table data, Arosuka Regional Hospital experienced a decrease in the number of patients because in that year it was in a Covid-19 pandemic condition which caused patients to be afraid to visit the hospital. In 2022, there was an increase in the number of return patient visits by 35 patients. The change in the number of patient visits that occurred could be because the patient had been declared cured, so they no longer needed to come for treatment or were dissatisfied with the services provided by the hospital.

Patients in this case as customers who are satisfied with a product or service tend to buy or continue to use the product or service and tell others about their satisfying experience with the product. So that customers who are dissatisfied will tend to move and complain to the manufacturer to criticize the service. This study aims to analyze the influence of hospital brand image, quality of health services and patient satisfaction on loyalty at Arosuka Regional Hospital.

## **B. LITERATURE REVIEW**

Research on brand image, service quality and satisfaction towards loyalty has been conducted by many previous researchers. The first study was entitled Navigating from Brand Image to Patient Loyalty: Mediating Effect of Service Quality and Patient Satisfaction. The study was conducted by Vimla & Taneja in 2020 at a hospital in the National Capital Territory of Delhi, India. This study aims to analyze brand image-service quality-patient satisfaction-loyalty in health services by understanding brand image and service quality which are modeled as multidimensional constructs in Indian health services. Furthermore, assessing the mediating effect of brand image on loyalty through service quality and patient satisfaction. From the analysis of survey data on 210 patients from the hospital, it

shows that brand image directly affects service quality, patient satisfaction and loyalty. Service quality directly affects patient satisfaction, patient satisfaction directly affects loyalty. So, the results of this study show that brand image has a direct and indirect impact through service quality and patient satisfaction on loyalty (Vimla & Udit, 2020).

The second study was entitled *The Impact of Hospital Brand Image on Service Quality, Patient Satisfaction and Loyalty*. The study was conducted by Chao-Chan Wu in 2011 at a private hospital in Taiwan. This study aims to examine the relationship between hospital brand image, service quality, patient satisfaction, and loyalty. Based on survey data collected from 437 respondents, the results of the study showed that hospital brand image has a direct and indirect influence on loyalty. This means that a positive hospital brand image not only increases patient loyalty directly, but also increases patient satisfaction through improved service quality, which ultimately increases patient retention (Wu, 2011).

The third study is entitled *The Influence of Hospital Image and Service Quality on Patient's Satisfaction and Loyalty*. The study was conducted by Asnawi et al. in 2019 at the emergency unit, Malaysia. This study aims to analyze the influence of hospital image and service quality provided by hospitals on patient satisfaction and loyalty at public hospitals in Terengganu, Malaysia. Based on survey data collected from 100 respondents, the results of the study illustrate that hospital image has no effect on patient's loyalty, but has a major impact on patient satisfaction. In addition, this study also illustrates that patient satisfaction has a major impact on patient loyalty. This study also clarifies that the service quality provided by the hospital has a direct influence on satisfaction and loyalty. Therefore, high service quality from the hospital will affect satisfaction and loyalty and a positive hospital image is an important factor in ensuring patient satisfaction (Asnawi et al., 2019).

### **The Influence of Brand Image on Loyalty**

Previous studies have found that brand image has a positive influence on loyalty. Research by Salsabila et al. (2022) shows that brand image has a direct influence on loyalty, where the results of the study showed that the brand image owned by the hospital was in the very good category of 57.1% and had a high loyalty level of 70.4%. Another study conducted by Wahyuni (2018) showed that brand image has a direct influence on loyalty, where the results of the study showed that the hospital's brand image was in the good category of 56.4% and had a good loyalty level of 80.8%. Another study conducted by Dewi & Sukesri (2022) showed that brand image had a positive and significant effect on patient loyalty from a sample of 120 respondents. Therefore, in the context of hospitals, the following hypothesis can be formulated: H1: The hospital's brand image has a positive influence on patient loyalty at Arosuka Regional Hospital

### **The Influence of Brand Image on the Quality of Health Services**

Previous studies found a significant influence between the hospital's brand image and the Quality of Health Services. In a study conducted by Sukawati (2021), it was shown that brand image has a positive and significant effect on the quality of health services with t statistics  $8.810 > 1.96$  and p value  $0.000 < 0.05$ . Another study conducted by Surapto (2019) showed that brand image has a positive effect on service quality with t statistics  $5.147 > 1.96$ . Another study conducted by Justin Wijaya and Sinar Putra (2023) in "Relationship between service quality, brand image, customer satisfaction, and customer loyalty of UC Makassar from student's perspective" showed that brand image has a positive and significant effect on service quality with t statistics  $6.813 > 1.96$  and p-value  $0.000 < 0.05$ . Therefore, in the context of a hospital, the following hypothesis can be formulated: H2: The hospital's brand image has a positive influence on the quality of health services for patients at Arosuka Regional Hospital

### **The Influence of Health Service Quality on Patient Satisfaction**

Previous studies have found a significant influence between Service Quality and Satisfaction. A study conducted by Noor (2020) showed that service quality has a positive effect of 48.5% on patient satisfaction. A study conducted by Fachrul et al. (2021) showed that service quality has a positive effect of 58.7% on patient satisfaction. Another study conducted by Jihan (2023) showed that service quality has a positive and significant effect on patient satisfaction with a t statistics value of  $6.119 < 1.96$  and p values of  $0.000 < 0.05$ . Therefore, in the context of a hospital, the following hypothesis can be formulated: H3: Health Service Quality has a positive effect on Patient Satisfaction at Arosuka Regional Hospital

### **The Influence of Health Service Quality on Loyalty**

Previous studies have shown that service quality has a positive influence on loyalty. Research conducted by Ridwan et al. (2024) shows that service quality has a positive effect on loyalty with a t statistics value of  $6.027 > 1.98$ . Another study conducted by Kurniawan et al. (2022) shows that service quality has a positive effect on Loyalty with a t statistics value of  $2.762 > 1.96$  and a p value of  $0.006 < 0.05$ . Furthermore, another study conducted by Teguh & Oentara (2022) shows that service quality has a positive effect of 63% on loyalty. Therefore, in the context of a hospital, the following hypothesis can be formulated: H4: Health Service Quality has a positive effect on Patient Loyalty at Arosuka Regional Hospital

### **The Influence of Patient Satisfaction on Loyalty**

Based on previous studies, it shows that patient satisfaction has a positive effect on Loyalty. In a study conducted by Ridwan et al. (2024) showed that patient satisfaction has a positive effect on loyalty with a t statistics value of  $10.773 > 1.98$ . Another study conducted by Syah et al. (2022) showed that consumer satisfaction has a significant positive effect of 48.2% on loyalty. In contrast to other studies conducted

by Kurniawan et al. (2022) showed that patient satisfaction is not significant on loyalty based on a t statistic value of  $1.628 < 1.96$  and a p value of  $0.104 > 0.05$ . Therefore, in the context of hospitals, the following hypothesis can be formulated: H5: Patient satisfaction has a positive effect on Arosuka Hospital Patient Loyalty

### C. METHOD

This study was conducted at Arosuka Regional Hospital, which is a government hospital that has a strategic location and is a comparison hospital for private hospitals and other government hospitals in the surrounding area. This study uses a quantitative approach with a case study method (Sekaran & Bougie, 2020). The respondents in this study were 160 patients. The provisions of the inclusion criteria in this study were respondents or patients who visited or received treatment at Arosuka Regional Hospital in 2024 more than once in the last 6 months when filling out the questionnaire, respondents or patients aged 2-70 years and respondents or patients who made personal or general payments non-BPJS.

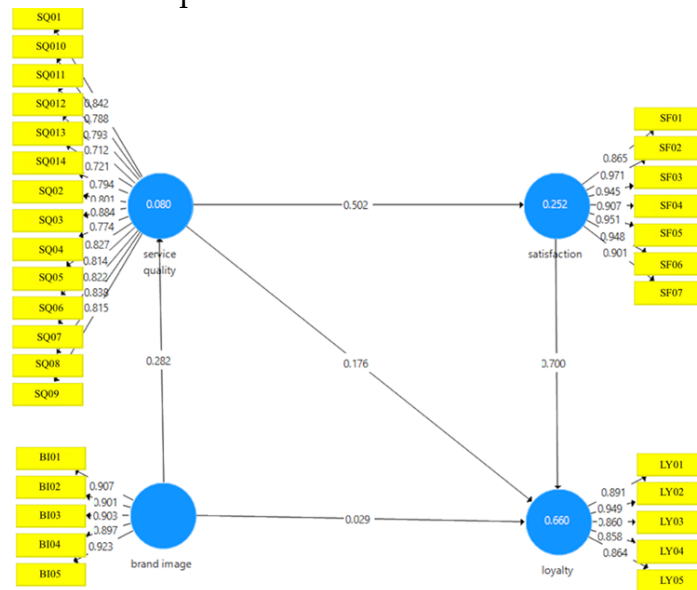
Primary data in this study were collected by distributing questionnaires containing patient data and there were 31 questions, including 5 questions from the hospital brand image variable, 14 questions from the health service quality variable, 7 questions from the patient satisfaction variable and 5 questions from the loyalty variable. The questionnaire representing questions regarding the research variables was equipped with five answer choices according to a 5-point Likert scale. Meanwhile, secondary data is obtained through literature, research, books, and publications that have been done previously. Data analysis in this study uses PLS-SEM (Partial Least Square-Structural Equation Modeling) Software. Data analysis with PLS-SEM will provide two types of output, namely the Outer Model (measurement model) and the Inner Model (structural model). The outer model presents the relationship between indicators and their variables to confirm the reliability and validity of each indicator used in the model. While the inner model explains the results of data processing through the bootstrapping feature, a non-parametric data assessment method with a re-sampling approach (Hair et al., 2019). Hypothesis testing is carried out by comparing the t-statistics value with the t-table. The hypothesis is declared accepted if the t-statistics value  $>$  t-table value and the p-value  $<$  alpha value. The path coefficient value indicated by the t-statistics value must be  $> 1.96$  for two-tailed and  $> 1.64$  for one-tailed (Hair et al, 2019). In this study, a one-tailed hypothesis test was used, namely the results of the t-statistic data were juxtaposed with a value of  $> 1.64$ .

### D. RESULTS AND DISCUSSION

Data analysis in this study was conducted using the multivariate statistical method Partial Least Square-Structural Equation Model (PLS-SEM). Analysis with PLS-SEM will be carried out using SmartPLS® software. In this study, two stages of statistical analysis were carried out, namely the Outer Model to test the reliability and validity of each indicator in the research model and the Inner Model to determine the

explanatory ability, predictive ability and relationships between variables through the significance value of the model being studied.

The research data were processed with SmartPLS 4 with the following results:



**Figure 1. Data Processing Results with SmartPLS 4 Software**  
 Source: Results of research data processing with PLS-SEM (2024)

**Measurement Model (Outer Model)**

*Indicator Reliability*

The Outer Model assessment begins with measuring the Outer Loading to assess the Reliability Indicator. From the data processing results, the Outer Loading value is above the threshold value of 0.7. Based on the provisions of the outer loading value exceeding the threshold, the indicator can be declared valid for measuring the construct (Hair et al, 2019).

**Table 2. Outer Loading Data Results**

Variable	Dimension	Indicator	Outer Loading	Results
Brand Image	Strength	BI01	0,907	Reliable
		BI02	0,901	Reliable
		BI03	0,903	Reliable
	Uniqueness	BI04	0,897	Reliable
	Favorable	BI05	0,923	Reliable
Quality of Health Services	Tangibles	SQ01	0,842	Reliable
		SQ02	0,801	Reliable
		SQ03	0,884	Reliable
		SQ04	0,774	Reliable
	Assurance	SQ05	0,827	Reliable
		SQ06	0,814	Reliable
		SQ07	0,822	Reliable
	Empathy	SQ08	0,838	Reliable
		SQ09	0,815	Reliable
	Responsivness	SQ010	0,788	Reliable
			SQ011	0,793

		SQ012	0,712	Reliable
	Reliability	SQ013	0,721	Reliable
		SQ014	0,794	Reliable
Patient Satisfaction	General Satisfaction	SF01	0,865	Reliable
	Technical Quality	SF02	0,971	Reliable
	Interpersonal Manner	SF03	0,945	Reliable
	Communication	SF04	0,907	Reliable
	Financial Aspects	SF05	0,951	Reliable
	Time Spent	SF06	0,948	Reliable
	Accessibility	SF07	0,901	Reliable
Loyalty	Trust	LY01	0,891	Reliable
	Psychological Commitment	LY02	0,949	Reliable
	Switching Cost	LY03	0,860	Reliable
	Word of Mouth	LY04	0,858	Reliable
	Cooperation	LY05	0,864	Reliable

Source: Results of research data processing with PLS-SEM (2024)

Based on the results of the table above, each indicator of each variable shows valid results with values that meet the criteria  $> 0.7$ . In the hospital brand image variable, the largest outer loading value is in the BI05 indicator of 0.923 which contains the statement "I think the brand name of the hospital, namely Arosuka Regional Hospital, is easy to remember". In the Health Service Quality variable, the largest outer loading value is in the SQ03 indicator of 0.884 which contains the statement "The hospital bathroom is cleaned regularly". In the Patient Satisfaction variable, the largest outer loading value is in the SF02 indicator of 0.971 which contains the statement "When I went for treatment, the doctor carefully carried out the appropriate examination when treating me". In the Loyalty variable, the largest outer loading value is in the LY02 indicator of 0.949 which contains the statement "I intend to say positive things about this hospital to other people".

### ***Construct Reliability***

After the Outer Loading measurement is carried out to assess the Reliability Indicator, the next step is to measure the construct reliability to assess whether the construct can be measured with all indicators simultaneously. This test is based on the Cronbach's alpha value, point of estimate ( $\rho_a$ ), and composite reliability. The threshold value set for Cronbach's alpha is 0.7. Meanwhile, the composite reliability value is considered reliable if it is between 0.7 and 0.8 (marginally acceptable), the value is between 0.8 and 0.9 (acceptable reliability), and the value above 0.9 is considered very good (high reliability) so that the higher the value indicates that each indicator supports each other and contributes well (Hair et al, 2019).

**Table 3. Construct Reliability Value**

Variable	Cronbach's Alpha	rho_a	Composite Reliability
Brand Image	0,946	0,948	0,958
Health Service Quality	0,957	0,960	0,962
Patient Satisfaction	0,973	0,974	0,977
Loyalty	0,930	0,933	0,948

Source: Results of research data processing with PLS-SEM (2024)

Based on the results of the table above, the Cronbach's alpha value of all variables meets the minimum threshold value of 0.7 that has been set. The composite reliability value for each variable also shows a value of  $> 0.9$  where these results indicate a very good value (high reliability). The results of this test indicate internal consistency and all indicators are reliable to reflect the constructs studied.

### *Construct Validity*

After conducting the construct reliability test, the next step is to measure construct validity or what can also be called convergent validity on the model used in the study. Determination of this validity value is done by determining the Average Variance Extracted (AVE) value where the variable value is considered valid if it has an AVE value  $> 0.5$  (Hair et al., 2019).

**Table 4. Construct Validity Value**

Variable	Average Variance Extracted (AVE)	Results
Brand Image	0,821	Valid
Health Service Quality	0,645	Valid
Patient Satisfaction	0,860	Valid
Loyalty	0,784	Valid

Source: Results of research data processing with PLS-SEM (2024)

Based on the results of the table above, it can be seen that the AVE value of each variable has met the AVE value  $> 0.5$  so that it can be concluded that all indicators in this study are able to measure the construct and are valid for use.

### *Discriminant Validity*

The last outer model measurement is the discriminant validity test. This test is conducted to determine whether the selected indicators have been discriminated well as a specific construct measurement tool. The discriminant validity test is conducted based on the heterotrait-monotrait ratio (HT/MT ratio) where the threshold value used is  $< 0.85$  which indicates a satisfactory and acceptable discriminant value.

**Table 5. Discriminant Validity Value**

Variable	Brand Image	Loyalty	Patient Satisfaction	Health Service Quality
Brand Image				
Health Service Quality	0,292			
Patient Satisfaction	0,291	0,834		
Loyalty	0,294	0,563	0,515	

Source: Results of research data processing with PLS-SEM (2024)

Based on the results of the table above, the results of the HT/MT ratio value for each variable where the value of each variable does not exceed the threshold of 0.85 with the highest value found in the Patient Satisfaction variable of 0.834. Based on these results, it can be concluded that all variables studied in this research model are well discriminated. From the four stages of evaluation of the outer model measurement in this study, namely by measuring (1) Reliability Indicators with outer loading values, (2) Construct Reliability with Cronbach's alpha values, point of estimate and composite reliability, (3) Construct Validity with AVE values, and (4) Discriminant Validity with HT/MT ratio values, it can be concluded that all indicators used in the study are reliable and valid to measure their constructs. So it can be concluded that this model is worthy of being studied at the next stage of statistical analysis, namely testing the structural model or inner model.

### Structural Model Results (Inner Model)

#### *Variance Inflation Factor (VIF)*

Variance Inflation Factor (VIF) is a model quality test that aims to see the presence of multicollinearity problems in the research model. Multicollinearity occurs when there is a strong relationship between two or more independent variables. The greater the multicollinearity value, the higher the tendency of standard errors that occur, thereby reducing the predictive ability. Multicollinearity issues are identified when the inner VIF value obtained is  $> 5$ , called critical, while the inner VIF value is between 3 and 5, called suggested, and the inner VIF value  $< 3$  does not indicate a multicollinearity problem or can be tolerated (Hair et al., 2019).

**Table 6. Inner Variance Inflation Factor (VIF) Value**

Path	VIF
Brand Image → Loyalty	1,118
Brand Image → Health Service Quality	1,000
Health Service Quality → Patient Satisfaction	1,000
Health Service Quality → Loyalty	1,376
Patient Satisfaction → Loyalty	1,375

Source: Results of research data processing with PLS-SEM (2024)

Based on the description of the table above, the inner VIF value for all variables shows  $< 3$  with the highest VIF value in the path Health Service Quality → Loyalty of 1.376. These results indicate that there is no multicollinearity issue in the study and all variables do not have a strong relationship with each other. So these results can indicate that the research model can be considered acceptable.

#### *Determination Coefficient (R Square)*

The next stage in the evaluation of the inner model is the quality assessment based on the R-square ( $R^2$ ) value or coefficient of determination. The R-square ( $R^2$ ) test on the endogenous construct aims to assess the explanatory ability and level of predictive accuracy in the model being studied (predictive accuracy). Predictive accuracy indicates the ability of the independent variable to predict the dependent

variable in the research model. In general, the R<sup>2</sup> value can be classified into three groups, namely substantial if the value obtained is > 0.75, moderate if the value obtained is 0.5 and weak if the value obtained is 0.25 (Hair et al, 2019).

**Table 7. R-square (R<sup>2</sup>) Value**

Variable	R-square
Brand Image	0,660
Health Service Quality	0,680
Patient Satisfaction	0,252

Source: Results of research data processing with PLS-SEM (2024)

Based on the table above, the R-square value for the Brand Image and Health Service Quality variables is included in the moderate predictive accuracy group with values of 0.660 and 0.680, respectively. This shows that the independent variables Brand Image and Health Service Quality are able to predict Loyalty moderately, so that this study model can be replicated in further research in the future on sample groups with different demographic backgrounds. Meanwhile, the Patient Satisfaction variable is included in the weak predictive accuracy group. These results indicate that this study model is only able to predict a small part of the dependent variable.

### **Effect Size (f<sup>2</sup>)**

The next stage in the evaluation of the inner model is the f-squared test (f<sup>2</sup>), where this test explains the magnitude of the influence or effect size of the results of bootstrapping data processing in the PLS-SEM approach. This test is carried out to determine the magnitude of the effect size of the construct if one of the R<sup>2</sup> changes or there is a construct that is removed in the research model being tested. The effect size test is categorized into three groups, namely small results if the value is < 0.02, medium results if the value is in the range of 0.02-0.15 and large results if the value is > 0.35. The bootstrapping results on the research model obtained the effect size value (f<sup>2</sup>) in the following table:

**Table 8. Effect Size Value (f<sup>2</sup>)**

Variable	f-square	Results
Brand Image → Loyalty	0.026	Medium Effect Size
Brand Image → Health Service Quality	0.086	Medium Effect Size
Health Service Quality → Patient Satisfaction	0.336	Medium Effect Size
Health Service Quality → Loyalty	0.066	Medium Effect Size
Patient Satisfaction → Loyalty	1.046	Large Effect Size

Source: Results of research data processing with PLS-SEM (2024)

Based on the description of the table above, the f-square value of the independent variable brand image has a medium effect on Loyalty and Quality of Health Services. These results indicate that the independent variable brand image has an important role in influencing both variables. Then the f-square value of the independent variable Quality of Health Services also has a medium effect size on Patient Satisfaction and Loyalty. These results indicate that the independent variable Quality of Health Services has an important role in influencing both variables. In addition, the f-square value of the independent variable Patient Satisfaction has a large

effect size on the dependent variable Loyalty so that these results confirm that the Patient Satisfaction variable has a crucial role in influencing the Loyalty variable. Therefore, all variables show good f-square values and it can be concluded that all variables in this study play an important role in assessing Patient Loyalty at Arosuka Hospital.

### Hypothesis Testing

Determining whether the hypothesis is accepted (supported) or not is done based on the value of the significance test results and coefficients. The direction of the coefficient must be in accordance with the direction of the proposed hypothesis because it is directional. In determining the hypothesis, the direction has been determined so that a statistical test is carried out with a one-tailed setting. The significance value is seen from the p-value of the bootstrapping results that have been set, namely  $< 0.05$  with a significance level of  $\alpha = 0.05$  and t-statistics  $> 1.96$ . If the bootstrapping results meet both requirements, the hypothesis can be said to be supported. The results of the hypothesis testing can be seen in table 9 below:

**Table 9. Hypothesis Test Results**

Hypothesis	Original Sample (O)	Sample Mean (M)	STDEV	t-statistics	p-value	Result
Brand Image → Loyalty	0,292	0,282	0,062	2,120	0,023	Significant
Brand Image → Health Service Quality	0,282	0,274	0,132	2,137	0,033	Significant
Health Service Quality → Patient Satisfaction	0,502	0,490	0,113	4,440	0,000	Significant
Health Service Quality → Loyalty	0,176	0,183	0,071	2,472	0,014	Significant
Patient Satisfaction → Loyalty	0,700	0,683	0,094	7,448	0,000	Significant

Source: Results of research data processing with PLS-SEM (2024)

Based on the results of the table above, it can be seen that all the hypotheses studied in this study are supported as expected. Therefore, it can be concluded that there is a significant influence between variables and coefficient values according to the direction of the proposed hypothesis. The description of the test for each hypothesis is as follows:

#### 1. The Influence of Brand Image on Loyalty

The results of the first hypothesis test show that the hospital's brand image has a positive influence on the Loyalty of Arosuka Hospital patients. This result is taken based on the p-value obtained 0.023 which is smaller than 0.05 and the t-statistics 2.120 is greater than 1.64 in this study. Therefore, H1 has sufficient statistical evidence to be stated as supported. This is in line with research conducted by Salsabila et al. (2022) which shows that brand image has a direct influence on loyalty. The managerial implications of the hospital's brand image on patient loyalty are very important because the hospital's brand image can influence patients' decisions to choose a hospital for examination and treatment and influence their level of satisfaction which

results in loyalty. The managerial implications that can be carried out by the hospital management team periodically are:

- a. Improving hospital facilities that support patient comfort and safety such as physiotherapy services, CT-scan or MRI radiology, and hemodialysis.
- b. Improving service quality, good communication and effective marketing strategies.

## 2. The Influence of Brand Image on the Quality of Health Services

The results of the second hypothesis test show that the hospital's brand image has a positive influence on the quality of health services for patients at Arosuka Regional Hospital. This result is taken based on the p-value obtained 0.033 which is smaller than 0.05 and the t-statistics 2.137 which is greater than 1.64 in this study. Therefore, H2 has sufficient statistical evidence to be stated as supported. This is in line with research conducted by Sukawati (2021) which shows that brand image has a positive and significant effect on the quality of health services. The managerial implications of the hospital's brand image on the quality of health services are very important because both influence each other and can determine the long-term success of the hospital. There are several ways for hospitals to maintain and improve the quality of health services to maintain the hospital's brand image to be better, namely:

- a. Increasing patient trust which results in patient satisfaction, improving the quality of the workforce, both medical and non-medical personnel who are qualified
- b. Developing a culture of patient safety and managing resources well by hospital management
- c. Improving competitive position by promoting hospital excellence such as the hospital's center of excellence which is superior to other hospitals.

## 3. The Influence of Health Service Quality on Patient Satisfaction

The results of the third hypothesis test show that the quality of health services has a positive influence on patient satisfaction at Arosuka Regional Hospital. This result is taken based on the p-value obtained 0.000 less than 0.05 and t-statistics 4.440 greater than 1.64 in this study. Therefore, H3 has sufficient statistical evidence to be stated as supported. This is in line with research conducted by Jihan (2023) which shows that service quality has a positive and significant effect on patient satisfaction. Managerial implications related to the quality of health services on patient satisfaction are very important because the two are closely related and influence each other. Patient satisfaction is not only influenced by the medical results achieved but also by the overall experience felt by the patient while in the hospital. There are several managerial implications that need to be considered, namely:

- a. Improving service quality as a top priority by ensuring that service quality standards are always maintained
- b. Forming a strategy to manage the patient experience including a fast and efficient registration process, clear communication from medical personnel to patients regarding their diagnosis and treatment
- c. Paying attention to the emotional needs of patients and families

- d. Hospital managers must ensure that all staff are trained in technical and interpersonal skills by routinely providing communication soft skills training.

#### 4. The Influence of Health Service Quality on Loyalty

The results of the fourth hypothesis test show that the quality of health services has a positive effect on patient loyalty at Arosuka Regional Hospital. This result is taken based on the p-value obtained 0.014 which is smaller than 0.05 and the t-statistics 2.472 is greater than 1.64 in this study. Therefore, H4 has sufficient statistical evidence to be stated as supported. This is in line with research conducted by Kurniawan et al. (2022) which shows that service quality has a positive effect on loyalty. The managerial implications related to the quality of health services on loyalty are very important because patients who feel satisfied and trust will tend to return to use the same health services in the future. This can also have a good impact because patients have the potential to become advocates who recommend hospitals to others. So hospital managers need to pay attention to several aspects in improving the quality of health services to encourage patient loyalty with managerial implications:

- a. Hospital managers need to create an environment where patients feel that services are tailored to their personal conditions and preferences. This includes managing patient medical history personally
- b. Hospital managers invest in technology that makes it easier for patients to access services such as telemedicine, booking doctor appointments, and ordering medications online
- c. Hospital managers proactively measure and manage patient satisfaction on a regular basis

#### 5. The Influence of Patient Satisfaction on Loyalty

The results of the fifth hypothesis test show that patient satisfaction has a positive influence on patient loyalty at Arosuka Regional Hospital. This result is taken based on the p-value obtained 0.000 less than 0.05 and t-statistics 7.448 greater than 1.64. Therefore, H4 has sufficient statistical evidence to be stated as supported. This is in line with research conducted by Kurniawan et al. (2022) which shows that patient satisfaction is not significant on loyalty. The managerial implications related to patient satisfaction on loyalty are very important because they are one of the main factors influencing whether patients will return to use the same health services or not, and whether they will recommend the hospital to others. The managerial implications that need to be considered by hospital management are:

- a. Ensuring that all aspects of service, including the skills of medical and non-medical personnel, the use of sophisticated medical technology, cleanliness and comfort of facilities so as to produce a positive experience for patients.
- b. Improve hospital operational efficiency, including minimizing waiting time at service points, improving service process flows, and utilizing technology to speed up registration, procedures, and payments.
- c. Ensure that every patient complaint is responded to properly and can be resolved professionally by hospital staff

## 6. Importance-Performance Mapping Analysis (IPMA)

Importance-performance Mapping Analysis (IPMA) is a method used to analyze factors that are considered important and the performance of research study variables. IPMA is an advanced analysis in SmartPLS software that is often used to provide managerial implications related to priority aspects. IPMA presents axis data in two dimensions, namely the variable dimension and the indicator dimension which are assessed based on the total effect value on one axis and the average value of the respondent data scale in the study which is rescaled on the other axis (Hair et al, 2019). The results of the IPMA mapping in this study were determined based on the target construct chosen, namely loyalty.

Importance Performance Mapping Analysis (IPMA) is carried out by combining the mean performance and total effect approaches. First, it is done by following the importance table from the total effect and performance lines. Then draw vertical and horizontal lines from the two data and divide the IPMA graph into 4 quadrants, the Y line depicts the performance value and the X line depicts the importance value. IPMA analysis is divided into construct IPMA and indicator IPMA (Hair et al, 2019).

## 7. Construct Importance-Performance Mapping (IPMA) Analysis

Construct IPMA refers to the variables analyzed in Importance-Performance Mapping Analysis to assess whether a variable is considered relevant for analysis in research. Construct IPMA is written in the mean value for the importance and performance of all variables. The mean value is used as the limit for low and high values. The value will be considered low if it is below the mean value and the value will be considered high if it is above the mean value.

**Table 10. IPMA Construct Values**

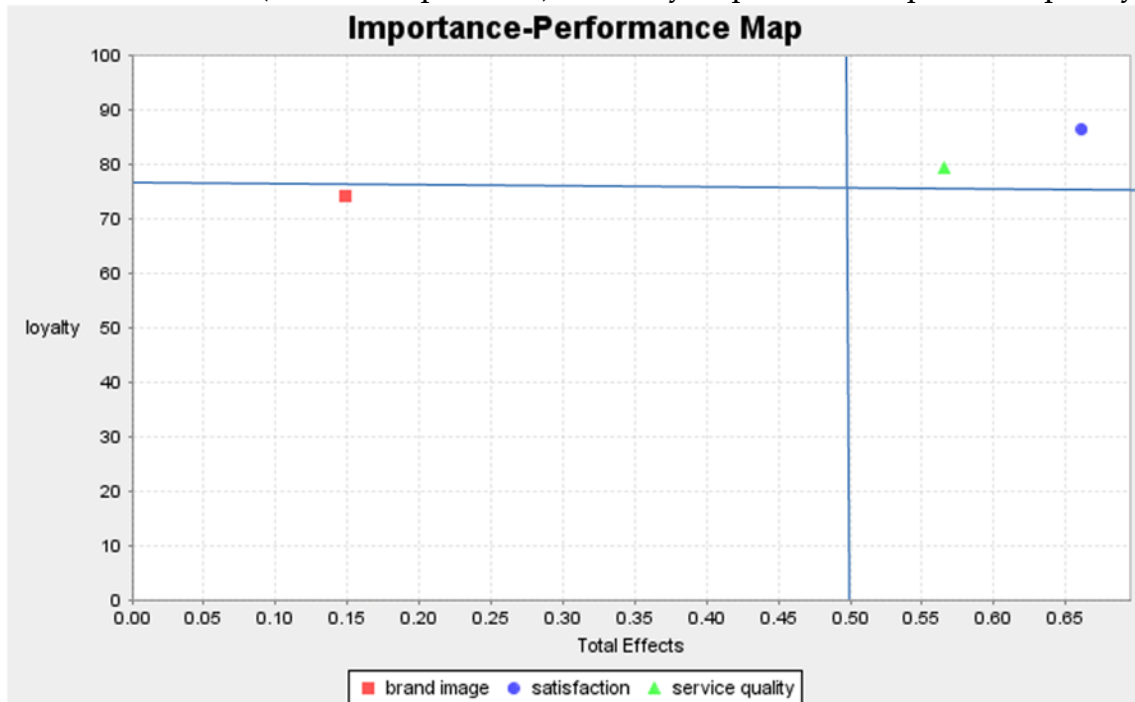
Variable	Importance	Performance
Hospital Brand Image	0,149	74,244
Health Service Quality	0,565	79,387
Patient Satisfaction	0,661	86,415
<b>Mean</b>	<b>0,458</b>	<b>80,015</b>

Source: Results of research data processing with PLS-SEM (2024)

The table above shows the target construct of loyalty as the focus of this study and the mean value for importance is 0.458 and performance is 80.015. The results of the IPMA construct analysis show the patient satisfaction variable with the highest importance value of 0.661 with the highest performance value of 86.415. Followed by the health service quality variable with an importance value of 0.565 and a performance value of 79.387. This shows that both variables have an important influence on loyalty performance in this study. While the variable with the lowest importance and performance values is the brand image variable with values of 0.149 and 74.244 respectively.

From the two mean values, vertical and horizontal lines will be drawn to divide the IPMA results into four quadrants, namely:

- a. Quadrant I (upper right quadrant), describes very important and well-performing variables
- b. Quadrant II (upper left quadrant), describes important but low-performing variables
- c. Quadrant III (lower right quadrant), describes variables that are not very important and perform well
- d. Quadrant IV (lower left quadrant), not very important and performs poorly



**Figure 2. IPMA Construct Graph**

Source: Results of research data processing with PLS-SEM (2024)

In the image results above, the IPMA construct graph results show the hospital brand image variable which is included in the lower left quadrant. This shows that brand image (0.149) describes a variable that is not very important and has low performance compared to the other two variables. While the other two variables, namely the quality of health services (0.565) and patient satisfaction (0.661) are included in the upper right quadrant. This shows that the quality of health services and patient satisfaction describe very important variables and have performed well above expectations or general performance. So it can be concluded that these two variables are the most important variables for loyalty. Therefore, the managerial implications that must be carried out by the hospital are to improve the quality of existing health services and increase patient satisfaction during hospitalization in order to increase patient loyalty to the Arosuka Regional Hospital.

#### 8. Importance-Performance Mapping (IPMA) Indicator Analysis

IPMA indicators refer to the evaluation of elements of each variable. The IPMA indicator analysis in this study was conducted on all indicators used in the brand image, quality of health services, and patient satisfaction variables which were written in mean values for their importance and performance.

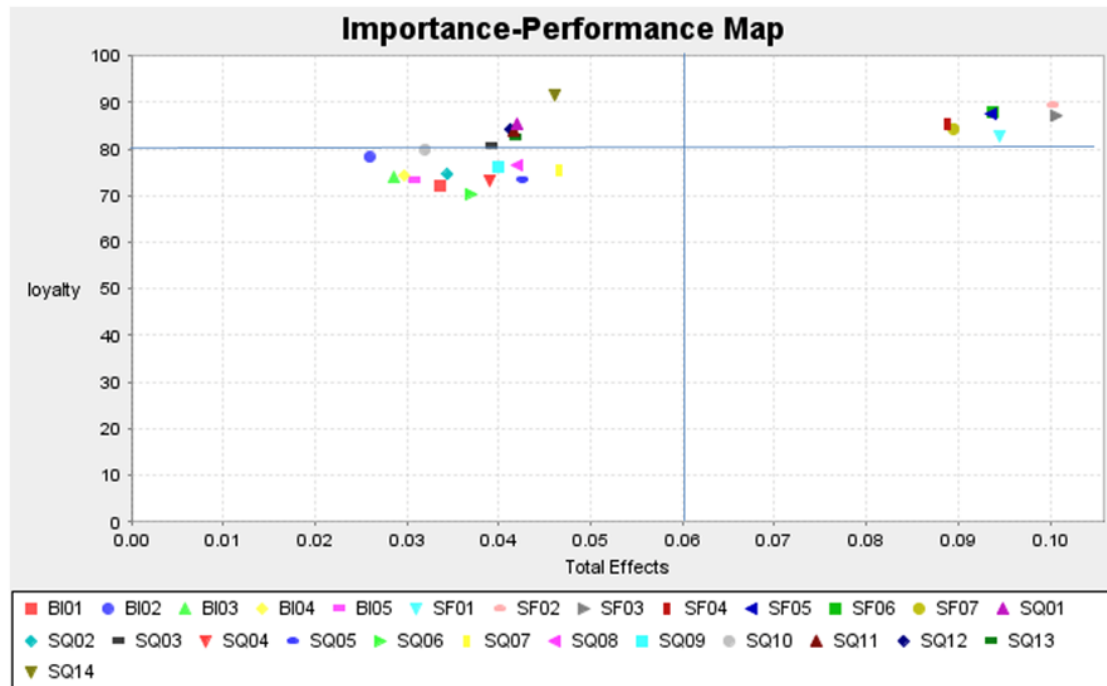
**Table 11. IPMA Indicator Values**

Variable	Indicator	Importance	Performance
Hospital Brand Image	BI01	0,034	72,188
	BI02	0,026	78,281
	BI03	0,029	73,906
	BI04	0,030	74,375
	BI05	0,031	73,281
Health Service Quality	SQ01	0,042	85,469
	SQ02	0,034	74,531
	SQ03	0,039	80,938
	SQ04	0,039	73,281
	SQ05	0,043	73,438
	SQ06	0,037	70,469
	SQ07	0,046	75,313
	SQ08	0,042	76,563
	SQ09	0,040	76,094
	SQ10	0,032	80,000
	SQ11	0,042	84,063
	SQ12	0,041	84,219
	SQ13	0,042	82,656
	SQ14	0,046	91,563
Patient Satisfaction	SF01	0,095	82,813
	SF02	0,100	89,531
	SF03	0,101	87,031
	SF04	0,089	85,469
	SF05	0,094	87,500
	SF06	0,094	87,813
	SF07	0,090	84,375
<b>Mean</b>		<b>0,053</b>	<b>80,198</b>

Source: Results of research data processing with PLS-SEM (2024)

The table above shows the target indicators of each variable as the focus of this study and the mean value for importance is 0.053 and performance is 80.198. The results of the IPMA indicator analysis show that in the brand image variable the importance and performance values of indicators BI01, BI02, BI03, BI04, BI05 are below the mean value. This illustrates that the indicators of the brand image variable are not very important and perform poorly on loyalty.

In contrast to the indicators in the health service quality variable which show varying importance and performance indicator values. The importance values of indicators SQ01 to SQ14 are below the mean value of 0.053. Meanwhile, some performance values are above the mean value, including SQ01 at 85.469, SQ03 at 80.939, SQ11 at 84.063, SQ12 at 84.219, SQ13 at 82.656, and SQ14 at 91.563. The results of the indicators on the patient satisfaction variable show that the importance and performance values are all above the mean value with the highest importance value in the SF03 indicator, while the highest performance value is in the SF02 indicator. From the two mean values, vertical and horizontal lines will be drawn to divide the IPMA indicator results into four quadrants.



**Figure 3. IPMA Indicator Graph**

Source: Results of research data processing with PLS-SEM (2024)

In the results of Figure 3 above, the results of the IPMA Indicator graph show that all indicators of the patient satisfaction variables SF01-SF07 are in the upper right quadrant with values above the mean. This shows that patient satisfaction describes a very important variable and has had good performance above expectations or general performance on loyalty compared to other variable indicators. There are several indicators that are included in the upper left quadrant that come from the health service quality variable which can be concluded that these indicators are important and perform well on loyalty. Therefore, the managerial implications that must be carried out by the hospital are to maintain and improve patient satisfaction through the quality of health services at Arosuka Regional Hospital.

## E. CONCLUSION

The results of the study revealed that hospital brand image has a significant positive effect on patient loyalty. A positive brand image not only increases patient trust but also encourages their loyalty, while influencing patient decisions in choosing health services in the future. In addition, a strong brand image also has a significant impact on the quality of health services. Hospitals with a good image are able to motivate medical personnel to provide the best service, attract quality professionals, and invest more in facilities, technology, and staff training to improve service standards and maintain sustainable competitiveness. Furthermore, the quality of health services shows a significant positive effect on patient satisfaction. Professional, fast, friendly, and effective services create a positive experience for patients, which ultimately increases their satisfaction with the services received. The quality of health services also significantly affects patient loyalty. Good service builds patient trust in the hospital, creates long-term relationships, and makes patients more loyal. Finally,

patient satisfaction is proven to have a significant positive effect on loyalty. Patients who are satisfied with the services received tend to choose the hospital again in the future and recommend it to others. These findings emphasize the importance of improving brand image, service quality, and patient satisfaction as key strategies in strengthening patient loyalty and the sustainability of hospital competitiveness.

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