The Effect of Service Quality, Doctor Interpersonal Communication, and Customer Relationship Management on Patient Loyalty with Patient Satisfaction as A Mediation At RSUBUDI Rahayu Pekalongan

Jefly Mandala Putra[1], Suliyanto[2], Gunistyo[3]
{jeflymandalaputra@gmail.com[1]}

Magister Management, Universitas Pancasakti Tegal, Indonesia[13]
Universitas Jendral Soedirman, Indonesia[2]

Abstract. The aims of this research were to 1) The effect of service quality on patient satisfaction, 2) The effect of doctor's interpersonal communication on patient satisfaction; 3) The influence of customer relationship management on patient satisfaction; 4) The effect of service quality on patient loyalty; 5) The effect of doctor's interpersonal communication on patient loyalty; 6) The effect of customer relationship management on patient loyalty; 7) The effect of patient satisfaction on patient loyalty; 8) The effect of service quality on patient loyalty with patient satisfaction as a mediator; 9) The effect of interpersonal communication of doctors on patient loyalty to patient satisfaction as a mediator; 10). The effect of customer relationship management on patient loyalty is patient satisfaction as a mediator. The population in this study were all inpatients at RSU Budi Rahayu Pekalongan. The number of inpatients at Budi Rahayu Hospital in Pekalongan in October 2022 was 450 patients. The sampling technique used was purposive sampling. The technique used to collect data in this study is a questionnaire. The data analysis method of this research is to test the validity and reliability of the instrument, descriptive statistics, and quantitative analysis.

Keywords: Service Quality, Physician Interpersonal Communication, Customer Relationship Management, Patient Satisfaction, Patient Loyalty.

1. Introduction

Widespread globalization and free trade have implications for all industrial sectors in Indonesia, including hospitals. As an integral part of the current health system, the characteristics of the hospital have changed, from just social services to socio-economic management, and finally to become an industry/company [1]. The hospital is one of the health services provided by the government or private sector. According to Hospital Law No. 44 of 2009 of the Republic of Indonesia, there is an obligation to provide complete individual health services by providing inpatient, outpatient and emergency services.

Hospitals in the current era of globalization do not only have a social mission. Managing hospital business aspects has become a natural consequence of the globalization era, so that hospitals no longer need to delay efforts to further improve themselves. The hospital industry that is able to provide highly competitive services will

be able to dominate the market. The growth in the number of hospitals is a challenge for hospital managers because it creates quite tight competition. One of the hospitals facing major challenges due to high competitiveness is Budi Rahayu Hospital in Pekalongan.

A hospital with high quality services and a good image that can survive and thrive. Hospitals must be able to provide quality services at competitive prices to achieve customer satisfaction and have an impact on increasing loyalty. The creation of customer loyalty allows companies to develop long-term relationships with customers. In addition, the costs required to attract new customers are also much greater than the costs to retain loyal customers to the company [2].

Customer loyalty is a deep-rooted commitment to continue to purchase or re-patronize a preferred product or service in the future. Companies should be able to provide what customers want and satisfy customers so that a harmonious relationship will be established between the company and customers, and form a good reputation. [3] states that a 5% reduction in corporate consumers switching can increase company profits by 25-85% for various industries. Thus, maintaining consumer loyalty plays an important role in increasing company profitability. As much as 70% of sales come from loyal consumers [3].

[4] stated that loyalty is formed from customer satisfaction and satisfaction is considered a fairly complex cognitive and affective construct that is able to mediate the influence of perceived customer value on repeat purchase behavior and other outcomes such as customer loyalty. Most of the empirical studies in the share of hospitals show that there is a relationship between satisfaction and loyalty [5,6] and [7]. There are several things that can provide customer satisfaction, namely the total customer value consisting of product value, service value, personal value, image or image value, and total patient costs consisting of monetary costs, time costs, energy costs, and thought costs for patients. outpatient or inpatient care [8].

This research was motivated by the existence of several problems that occurred at Budi Rahayu General Hospital in Pekalongan. The inpatient unit is one of the health services at RSU Budi Rahayu Pekalongan. Based on the principle of departmentalization, the hospital as a business unit is divided into productive cost centers, one of which is hospitalization. In general, hospital performance assessment uses bed occupancy ratio (number of bed usage), average length of stay, (average length of stay), turn over interval (bed use interval), and bed turnover (frequency of bed use). The description of these indicators is an illustration of hospital performance indicators which are also a reflection of patient loyalty

Table 1. Performance Indicators of Budi Rahayu Hospital in Pekalongan

No.	Information	2019	2020	2021	Ideal Value According to the Ministry of Health
1	BOR	59,82	65,91	62,97	60-85%
2	AvLOS	3,48	3,33	3,67	6-9 day
3	TOI	2,33	1,96	1,97	1-3 day

4	BTO	62,9	68,9	68,9		40- 50 times
		9	9	9		

Table 1 above explains the hospital's performance which is also a reflection of patient loyalty. The bed occupancy ratio (BOR), which reflects the utilization of beds in hospitals, will decrease in 2021 even though the BOR obtained still meets the ideal standards set by the health department. The decrease in BOR indicates a decrease in the patient's desire to be hospitalized at Budi Rahayu General Hospital in Pekalongan.

RSU Budi Rahayu Pekalongan conducted an internal survey regarding patient satisfaction to determine the level of patient satisfaction with the services provided to inpatients with the items asked relating to indoor services, the skills of officers in providing services, communication systems and ethical attitudes of officers in providing services to the patient. Based on the results of the internal survey, it is known that several aspects still receive low scores, which means that patient satisfaction is still relatively low for the services provided, including facilities, administrative services and provision of information by officers in the room. Patients complained about parking lots that were not integrated, and some patients complained about the air conditioner (AC) in the room which was not cold enough. Patients also complain about the provision of information by room staff to patients or families who are less alert. The patient or family must first ask some information from the officer where the patient expects the officer to be more active in providing clear information without being asked by the patient or his family.

Low patient satisfaction will have an impact on the development of the hospital. In patients who are dissatisfied with the health services received, the patient decides to move to another hospital that can provide better service. Patient dissatisfaction when hospitalized is caused by several factors, one of which is the services provided by the hospital. Patients expect the resolution of their health problems at the hospital. Patients perceive that only hospitals are capable of providing medical services as an effort to heal and recover from their illness. Patients expect services that are ready, fast, responsive and comfortable for patient complaints

Research conducted by [6,9–12] as well as research by [13] prove that service quality services provided by the hospital and in accordance with patient expectations will be able to provide satisfaction so that it will create loyal customers.

One of the factors that can influence patient satisfaction for hospitalization is the perception of the quality of hospital services[14]. The elements that make up quality services are a combination of human qualities which are reflected by personal behavior or attitudes in interacting with users and skills or expertise which is the mastery of technical elements and procedures related to work tasks.

Evaluates the structure and components of patient satisfaction with hospital services by defining the service structure as the physical environment and facilities where the service is provided. Satisfaction is shown by the patient's attitude after receiving medical services from the hospital. If the patient feels that the service provided is in accordance with his expectations, he will usually notify the service system obtained by other people he knows.

One type of service provided by the Hospital is providing balanced and responsible information and education about health. Doctor-patient communication is the development of an effective doctor-patient relationship that takes place efficiently, with

the main objective of conveying information or providing explanations needed in order to build cooperation between doctors and patients. Communication carried out by doctors and patients is included in the type of interpersonal communication. Communication between doctors and patients is needed to obtain optimal results, in the form of health problems that can be resolved and patient recovery [11]. High levels of communication as well as the warmth and familiarity of communication between doctors and patients are used to improve interpersonal relationships doctors to patients [13].

Research conducted by [4,11,13,15,16] prove that communication between doctors and patients is necessary to obtain optimal results, in the form of health problems that can be resolved and patient recovery so that communication between doctors and patients is effective.

2. Framework For Thinking

The conceptual framework described above can then be outlined in Figure 1 below.

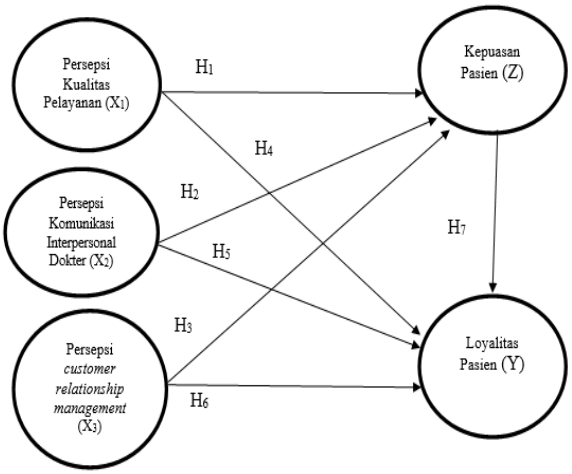

Figure 2. Research Framework

3. Research Method

This research is included in the type of survey research. The population in this study were all inpatients at RSU Budi Rahayu Pekalongan. The number of inpatients at RSU Budi Rahayu Pekalongan in October 2022 was 450 patients and the sampling technique used was purposive sampling. The technique used to collect data in this study is a questionnaire. Methods of data analysis namely Instrument Validity and Reliability Test, Descriptive Statistics and Quantitative Analysis

4. Result and Discussion

The data analysis used in this study is a structural equation model. Following are the results of SEM calculations:

4.1. Structural Equation Modeling (SEM) Development

Because the study model consists of several substructures, data analysis was performed using a structural equation model (SEM) approach. The substructure of this study shows the effect of service quality, physician interpersonal communication, customer relationship management, and patient satisfaction on patient loyalty. In this study the data analysis technique used is Structural Equation Modeling (SEM) which consists of seven stages, namely:

a. Theory-Based Model Development
b. The study model consists of 22 indicators to test the influence between variables.
c. Development path diagram (path diagram)
d. Turn flowcharts into equations
e. The study model equation is shown in Table 2

Table 2 Variable Test Models Affecting Patient Loyalty

Exogeneus	***Endogeneus***
$X_1 = \lambda_1$ Service quality + ε_1	$X_{14} = \lambda_{14}$ Patient Satisfaction + ε_{14}
$X_2 = \lambda_2$ Service quality + ε_2	$X_{15} = \lambda_{15}$ Patient Satisfaction + ε_{15}
$X_3 = \lambda_3$ Service quality + ε_3	$X_{16} = \lambda_{16}$ Patient Satisfaction + ε_{16}
$X_4 = \lambda_4$ Service quality + ε_4	$X_{17} = \lambda_{17}$ Patient Satisfaction + ε_{17}
$X_5 = \lambda_5$ Service quality + ε_5	$X_{18} = \lambda_{18}$ Patient Satisfaction + ε_{18}
$X_6 = \lambda_6$ Physician Interpersonal Communication + ε_6	$X_{19} = \lambda_{19}$ Patient Loyalty + ε_{19}
$X_7 = \lambda_7$ Physician Interpersonal Communication + ε_7	$X_{20} = \lambda_{20}$ Patient Loyalty + ε_{20}
$X_8 = \lambda_8$ Physician Interpersonal Communication + ε_8	$X_{21} = \lambda_{21}$ Patient Loyalty + ε_{21}
$X_9 = \lambda_9$ Physician Interpersonal Communication + ε_9	$X_{22} = \lambda_{22}$ Patient Loyalty + ε_{22}
$X_{10} = \lambda_{10}$ *CRM* + ε_{10}	
$X_{11} = \lambda_{11}$ *CRM* + ε_{11}	
$X_{12} = \lambda_{12}$ *CRM* + ε_{12}	
$X_{13} = \lambda_{13}$ *CRM* + ε_{13}	

From Table 2 it can be seen that there are two substructures, each with one dependent variable and one independent variable.

The relationship between variables in substructure 1 is:

Dependent Variable: Patient Satisfaction

Independent variables: service quality, physician interpersonal communication, and customer relationship management.

Structural equation and measurement model:

Patient Satisfaction = ■1 service quality + ■2 physician interpersonal communication + ■3 customer relationship management + Z1

The relationship between the variables in the two substructures is:

Dependent Variable: Patient Loyalty

Independent variables: service quality, physician interpersonal communication, customer relationship management, and patient satisfaction.

Structural equation and measurement model:

Patient Loyalty = ■1 service quality + ■2 physician interpersonal communication + ■3 customer relationship management + ■4 patient satisfaction + z2

4.2. **Confirmation Factor Analysis**

For the inferential analysis in this study, structural equation modeling (SEM) techniques were used. Analysis using the Structural Equation Modeling (SEM) technique, the estimation is carried out in stages, first by using a confirmatory factor analysis technique.

The confirmatory factor analysis (CFA) analysis of this study model is as follows:

An overview of the model on service quality variables can be seen in Figure 3

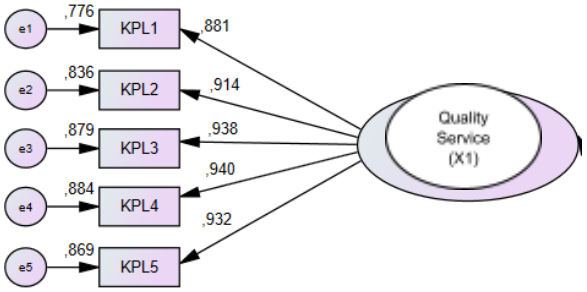

Figure 3. Service Quality Measurement Models

Based on Figure 3, it can be seen that the loading factor value for the latent variable of service quality, the first index is 0.881, the second index is 0.914, the third index is 0.938, the fourth index is 0.940, and the fourth index is 0.932. There are no indicators with a loading factor value of less than 0.500 on the latent variable of service quality, which makes the five indicators meet the convergent validity requirements when using the AMOS Ver 22 software for SEM analysis, therefore in further hypothesis testing all the service quality variable indicators used pass .

The model image for the Physician Interpersonal Communication variable can be seen in Figure 4

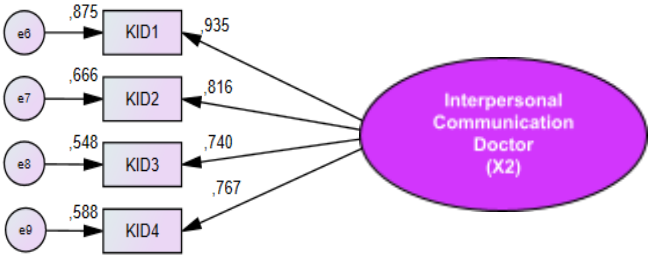

Figure 4. Doctor's Interpersonal Communication Measurement Model

Based on Figure 4, it can be seen that the loading factor value for the first indicator of the latent variable of doctor interpersonal interaction is 0.935, the second indicator is 0.816, the third indicator is 0.740, and the fourth indicator is 0.767. The average value of the loading factor on the latent variable of interpersonal communication among doctors is greater than 0.500, indicating that all indicators meet the requirements of convergent validity in the SEM analysis of the AMOS software Ver. 22. Therefore, in further hypothesis testing all indicators of physician interpersonal

communication variables are used.

Pictures of the models in the CRM variable can be seen in Figure 5

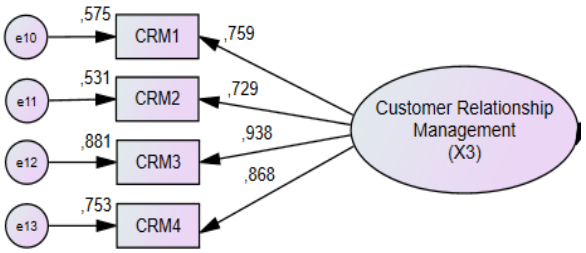

Figure 5. CRM Measurement Models

Based on Figure 5, it can be seen that the loading factor value for the first indicator of the CRM latent variable is 0.759, the second indicator is 0.729, the third indicator is 0.938, and the fourth indicator is 0.868. The average value of the CRM hidden variable factor loading is greater than 0.500, so that all indicators meet the convergent validity requirements when using AMOS Ver. software for SEM analysis. 22. All CRM variable indicators are used for further hypothesis testing.

Existing model images for patient satisfaction variables are shown in Figure 6.

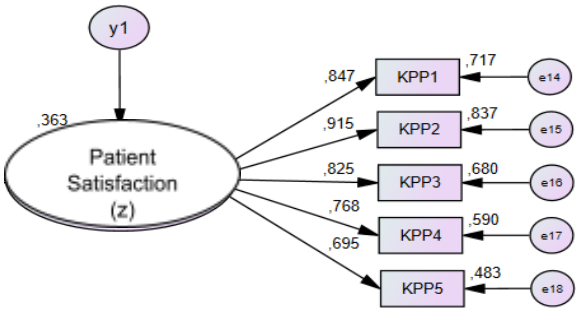

Figure 6. Patient Satisfaction Measurement Models

Based on Figure 6 it can be seen that the loading factor value on the patient satisfaction latent variable is 0.847 for the first index, 0.915 for the second index, 0.825 for the third index, 0.768 for the fourth index, and 0.768 for the fifth index. The indicator is 0.695. The average value of the loading factor on the patient satisfaction latent variable is greater than 0.500 making all indicators meet the convergent validity requirements for SEM analysis using AMOS Ver. software. 22. All patient satisfaction variable indicators are used for further hypothesis testing.

The patient loyalty variable model plot is shown in Figure 7

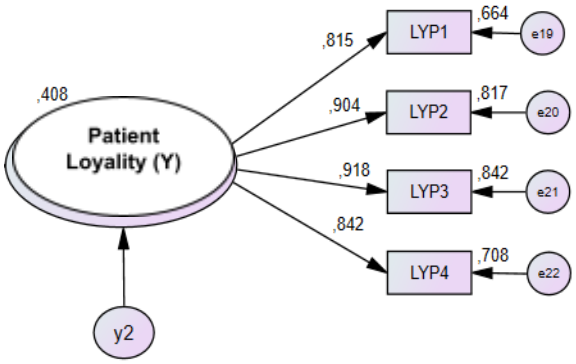

Figure: 7 Patient Loyalty measurement models

Based on Figure 7 it can be seen that the loading factor value on the patient loyalty latent variable is 0.815 for the first index, 0.904 for the second index, 0.918 for the third index, and 0.842 for the fourth index. The average value of the loading factor on the patient loyalty latent variable is greater than 0.500, so that all indicators meet the convergent validity requirements for SEM analysis using the AMOS Ver. software. 22. All indicators of patient loyalty variables are used for further hypothesis testing.

After confirmatory factor analysis (Confirmatory Factor Analysis), referred to as confirmatory factor analysis technology, the model at this stage will pay attention to the loading factor value to confirm whether the observed variable reflects the factor being analyzed, if the loading factor value ≥ 0.500, meets the Convergent Validity Requirements in the Analysis SEM.

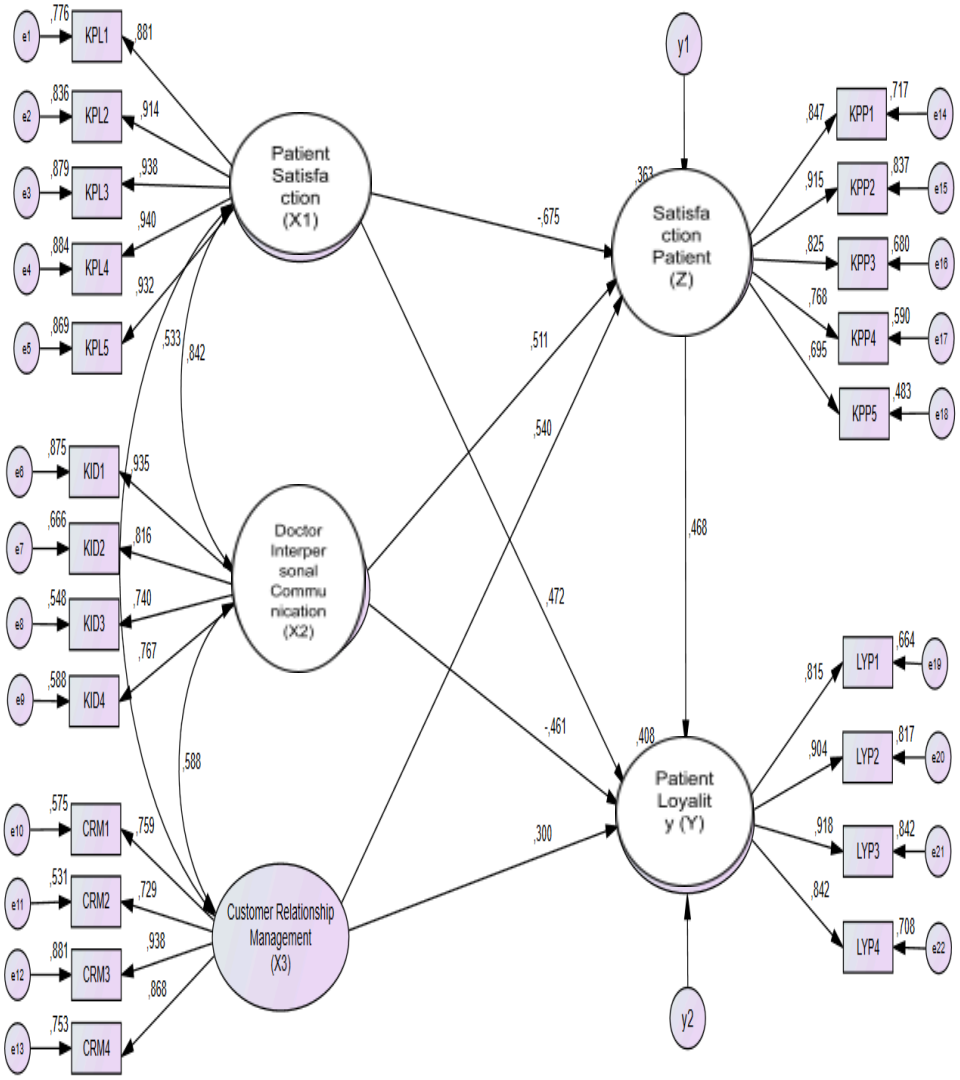

Figure 8
Confirmatory Factor Analysis Measurement Model

In Figure 8, after confirmatory factor analysis, all latent variable indicators have a loading factor value of ≥ 0.500, so that all of these indicators can be included in the next hypothesis test.

4.3. **Evaluation of Outliers**

Outliers are observations or data with unique characteristics that appear very different from other observations and occur as extreme values, both for individual variables and for combinations of variables (Hair et al., Augusty Ferdinand, 2018 year).

Outliers can be assessed by analyzing multivariate outliers (Hair et al., in Ferdinand, 2018).

The Mahalo-Nobis distance was calculated from the chi-square value of degrees of freedom (number of indicators) at the P1 and P2 levels <0.05. The results of the multivariate outlier test are shown in the table below:

Table 3 Multivariate Outliers Test

Observation number	Mahalanobis d-squared	p1	p2
18	35,791	0,032	0,993
12	35,615	0,033	0,966
124	35,615	0,033	0,891
88	35,574	0,034	0,766
131	35,574	0,034	0,596
10	35,569	0,034	0,419
123	35,569	0,034	0,265
84	35,324	0,036	0,189
70	35,305	0,036	0,105
38	35,085	0,038	0,07
126	35,085	0,038	0,034
78	34,959	0,039	0,018
129	34,959	0,039	0,008
40	34,558	0,043	0,007

Based on Table 3, it can be seen that because the Markov probability value P1 <0.05 and P2 <0.05, the 14 data are included in the multivariate outlier. Based on Table 3 in this analysis, the outliers found are excluded from the analysis and are not used to determine the hypothesis.

4.4. **Evaluation of Data Normality**

The multivariate data used in this analysis can be tested for normality as shown in Table 4.16. The normality test at a significance level of 0.01 (1%) uses Critical Ratio (CR) 2.58 criteria.

Tabel 4. Normalitas Data

Variable	min	max	skew	c.r.	kurtosis	c.r.
KPL5	2,000	7,000	-1,745	-8,431	2,185	5,277
KPL4	1,000	7,000	-1,817	-8,777	2,563	6,189
KPL3	2,000	7,000	-1,688	-8,154	2,070	5,000
CRM4	2,000	7,000	-1,464	-7,070	2,262	5,464
KPP5	2,000	7,000	-1,458	-7,045	1,669	4,030
KPL1	1,000	7,000	-1,530	-7,392	1,374	3,319
CRM2	1,000	7,000	-1,305	-6,305	,469	1,133
CRM3	2,000	7,000	-1,793	-8,661	4,044	9,768
CRM1	1,000	7,000	-1,927	-9,306	3,803	9,184
LYP1	2,000	7,000	-1,282	-6,194	1,365	3,296
LYP4	2,000	7,000	-,627	-3,028	-,425	-1,028
LYP3	2,000	7,000	-1,417	-6,846	1,671	4,035
LYP2	2,000	7,000	-1,372	-6,626	1,936	4,675
KPP1	2,000	7,000	-1,346	-6,504	1,479	3,573
KPP4	2,000	7,000	-1,307	-6,316	2,030	4,902
KPP3	2,000	7,000	-2,411	-11,646	7,756	18,733
KPP2	3,000	7,000	-1,324	-6,394	1,683	4,064
KID3	2,000	7,000	-1,619	-7,819	1,866	4,507
KID4	2,000	7,000	-2,252	-10,880	4,661	11,256
KPL2	1,000	7,000	-1,808	-8,734	2,835	6,848
KID1	3,000	7,000	-1,778	-8,589	2,383	5,756
KID2	2,000	7,000	-1,296	-6,261	,499	1,204
Multivariate					48,664	8,860

The data normality test on the AMOS output was carried out by comparing the CR value in the normality assessment with a critical value of ± 2.58 at the 0.01 level. If there is a CR value that is greater than the cutoff, then the data is univariately abnormal.

The resulting CR value for the multivariate coefficient is 8.860. This value is greater than ± 2.58 (for $\alpha = 1\%$), so that multivariate normality is not fulfilled.

Deviations from the assumption of normality can be checked again by resampling using the bootstrap technique. If the estimation is still the same as without bootstrapping, then the study model without bootstrapping can still be used. The bootstrap used in this study is the maximum likelihood (ML) bootstrap. This is Bollen Stine Bootstrap's output:

Table 5 Bollen-Stine Outputs

Bollen-Stine Bootstrap (Default model)
The model fit better in 140 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = ,007

Source: primary data processed (2023)

After bootstrapping, the results of the Bollen-Stine bootstrap probability = 0.007 which is significant at 5% (0.05), so that the assumption of normality of the model can be accepted.

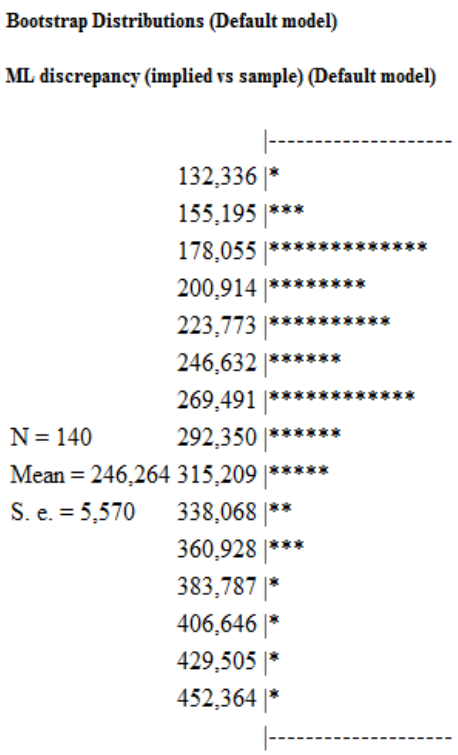

Figure. 9 Data Distribution Model

From Figure 9 it can be seen that the data distribution model is in the form of a bell, and the study model data is normally distributed, which is suitable for testing all research hypotheses.

4.5. Multicollinearity Test

The multicollinearity test helps to find out whether there is a relationship between the independent variables. Multicollinearity occurs when the correlation value between other metrics is > 0.9 (Ghozali, 2014). The following are the results of the multicollinearity test:

Table 10. Multicollinearty Test Results

			Estimate
KPLX1	<-->	KIDX2	0,890
KIDX2	<-->	CRMX3	0,597
KPLX1	<-->	CRMX3	0,553

Source: primary data processed (2022)

It can be seen from the table above that the average correlation value between independent variables is below 0.9. Therefore it can be seen from the results that there is no multicollinearity in this study.

4.6. **Model Fit Evaluation**

Evaluation of the due diligence model of this study is as follows:
Get the Model Fit | CMIN folder in the Amos Output analysis:

Table 11. CMIN Fit Model Research Model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	54	902,731	199	0,000	4,536
Saturated model	253	0,000	0		
Independence model	22	3738,137	231	0,000	16,182

The result of the chi-square statistic (X2) is 4.536 with a P-value of 0.000. Because the resulting p-value is small (less than $\alpha = 5\%$), the model can be said to be underfit.

Next, get the baseline comparison in the model fitting folder:

Table 12. Comparison Study Model Baseline Installation Model

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	0,759	0,720	0,801	0,767	0,799
Saturated model	1,000		1,000		1,000
Independence model	0,000	0,000	,000	0,000	0,000

The resulting CFI fit index is 0.799. Since the CFI is less than 0.90, it also shows that the model is not installed properly. Also note the other incremental fit indices, which are all below 0.90. Next, in the Model Fit folder | RMSEA. Get:

Table 13 RMSEA Fit Model Research Model

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0,160	0,149	0,170	0,000
Independence model	0,330	,0321	0,340	0,000

The resulting RMSEA value is 0.160. Because the value is greater than 0.10, the model is considered fit.
From the discussion in Table 13 it can be concluded that the model has been identified

and the model has not been declared fit. However, by obtaining an RMSEA of 0.160 which is close to 0.10, it can be said that the model fits well..

4.7. Complete Structural Equation Modeling (SEM) Model

The figure below shows a complete Structural Equation Modeling (SEM) model "Quality of Service, Interpersonal Communication of Doctors, CRM as a Basis for Fostering Patient Loyalty Through Patient Satisfaction at RSU Budi Rahayu Pekalongan".

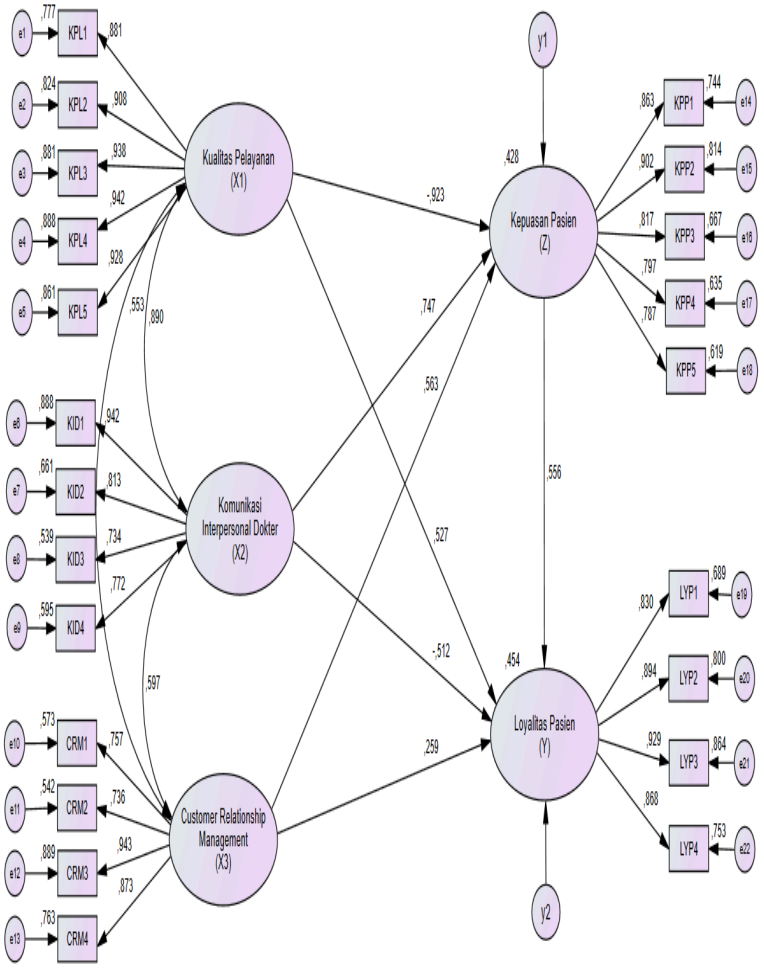

Figure 10. Results of Structural Equation Modeling (SEM) Analysis.

Based on calculations using the SEM program Amos Ver. 22. It can be seen that the values of the Regression Weights and Standard Regression Weights are shown in Table 4.17 and Table 4.18, so that the relationship between the dependent

variable and the independent variable from the measurement model can be seen, both for substructure estimation and equation analysis.

Table 14. Regression Weights

			Estimate	S.E.	C.R.	P	Label
KPPZ	<---	KPLX1	-0,681	0,154	-4,416	***	
KPPZ	<---	KIDX2	0,714	0,210	3,405	***	
KPPZ	<---	CRMX3	0,587	0,114	5,138	***	
LYPY	<---	KPLX1	0,376	0,164	2,291	0,022	
LYPY	<---	KIDX2	-0,474	0,214	-2,215	0,027	
LYPY	<---	KPPZ	0,538	0,110	4,907	***	
LYPY	<---	CRMX3	0,261	0,114	2,278	0,023	

Source: Primary Data Processed (2023)

Table 15. Results of Standard Regression Structural Equation Modeling Analysis

			Estimate
KPPZ	<---	KPLX1	-0,923
KPPZ	<---	KIDX2	0,747
KPPZ	<---	CRMX3	0,563
LYPY	<---	KPLX1	0,527
LYPY	<---	KIDX2	-0,512
LYPY	<---	KPPZ	0,556
LYPY	<---	CRMX3	0,259

Source: Primary Data Processed (2023)

Based on Table 4.23, the structural equation for substructure 1 can be made as follows:

Patient Satisfaction = -0.923 quality of service + 0.747 physician interpersonal communication + 0.563 CRM + Z1

According to Table 4.23, the following structural equations can be made for both substructures:

Patient loyalty = 0.527 quality of service - 0.512 physician interpersonal communication + 0.259 CRM + 0.556 patient satisfaction + Z

4.8. Hypothesis Testing

The results of the SEM analysis of this study are described in the following hypothesis testing steps:

The first hypothesis of this study is "service quality affects patient satisfaction". The results of the SEM analysis carried out can be interpreted as a value of -0.681 for the standard regression coefficient (KPLX1 ☾ KPPZ) of service quality on patient satisfaction. In Table 4.23 and Figure 4.9. From the results of the p-value (0.000) in column P it can be seen that if it is smaller than the critical value (0.05) it proves that the hypothesis "quality of service affects patient satisfaction" is true.

The second hypothesis of this study is "doctors' interpersonal communication affects patient satisfaction". The results of the SEM analysis carried out can be

interpreted that the value of the standard regression coefficient (KIDX2 ☾ KPPZ) of physician interpersonal communication on patient satisfaction is 0.714. From Table 4.23 and Figure 4.9 above it can be seen that the p value of column P (0.000) is less than the critical value (0.05) which proves that the hypothesis "interpersonal communication of doctors affects patient satisfaction" is true.

The third hypothesis of this study is "CRM has an effect on patient satisfaction". The results of the SEM analysis carried out can be interpreted as a standard regression coefficient (CRMX3 ☾ KPPZ) CRM on patient satisfaction with a value of 0.587. As shown in Table 4.23 above and Figure 4.9, the results of the p-value (0.000) column P is smaller than the critical value (0.05), so the hypothesis "CRM affects patient satisfaction" is proven to be true.

The fourth hypothesis of this study shows that "service quality influences patient loyalty". The results of the SEM analysis carried out can be interpreted as a standard regression coefficient value of 0.376 for service quality vs. patient loyalty at Budi Rahayu Hospital in Pekalongan (KPLX1 ☾ LYPY). As shown in Table 4.23 and Figure 4.9 above, the p-value (0.022) in the P column is less than the critical value (0.05) which proves that the hypothesis "quality of service affects patient loyalty" is true.

The fifth hypothesis of this study is "doctors' interpersonal communication influences patient loyalty". The results of the SEM analysis carried out can be interpreted as -0.474 for the standard regression coefficient value of service quality on patient loyalty at Putirahyu Hospital Pekalongan (KIDX2 ☾ LYPY). From table 4.23 and figure 4.9 above it can be seen that the results of the p-value (0.027) column P is smaller than the critical value (0.05), so the hypothesis "interpersonal communication of doctors affects patient loyalty" is proven true.

The sixth hypothesis of this study is "CRM has an effect on patient loyalty". The results of the SEM analysis are shown in the figure above and Table 4.16, which can explain the value of 0.261 in the standard regression coefficient (CRMX3 ☾ LYPY) CRM on patient loyalty. From Table 4.23 and Figure 4.9 it can be seen that the results of the p-value (0.023) column P is smaller than the critical value (0.05), proving that the hypothesis "CRM has an effect on patient loyalty" is true.

The seventh hypothesis in this study states that "patient satisfaction affects patient loyalty". The results of the SEM analysis above can be interpreted that the standard regression coefficient value of Patient Satisfaction Employees of Budi Rahayu Pekalongan General Hospital (KPPZ ☾ LYPY) on Patient Loyalty is 0.538. As shown in Table 4.23 and Figure 4.9 above, the p value (0.000) in column P is smaller than the critical value (0.05), which then proves the hypothesis that "patient satisfaction affects patient loyalty" is true.

The eighth hypothesis in this study examines the effect of service quality on patient loyalty which is mediated by patient satisfaction. Testing the eighth hypothesis in this study is used to prove the truth of the eighth hypothesis, which is carried out using the Sobel test as shown in the calculation below.

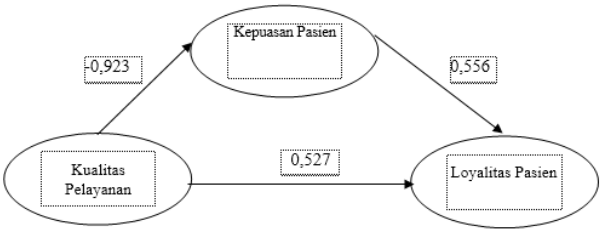

Figure 11. Sobel service quality test to calculate patient loyalty with patient satisfaction as an intermediary

Based on the Sobel test calculations, the tcount value is -3.366 <-1.97 (ttable), meaning that H0 is rejected. This shows that patient satisfaction can mediate the effect of service quality on patient loyalty.

The ninth hypothesis in this study examines the effect of physician interpersonal communication as a mediator on patient loyalty and patient satisfaction. Testing the ninth hypothesis in this study to prove the truth of the ninth hypothesis is carried out using the Sobel test as shown in the following calculation:

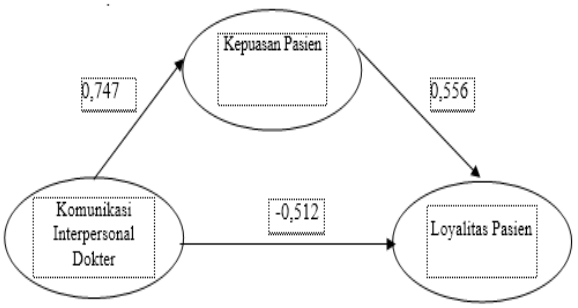

Figure 12. Measuring Patient Loyalty with the Doctor's Interpersonal Communication Sobel Test Mediated by Patient Satisfaction

Based on the calculation of the Sobel test, the tcount value is 2.549 > 1.97 (ttable), meaning that H0 is rejected. This shows that patient satisfaction can mediate the effect of doctor's interpersonal interaction on patient loyalty.

The tenth hypothesis in this study examines the effect of CRM on patient loyalty with patient satisfaction as a mediator. Testing the tenth hypothesis in this study is used to show the truth of the tenth hypothesis which is carried out using the Sobel test as shown in the calculation below.

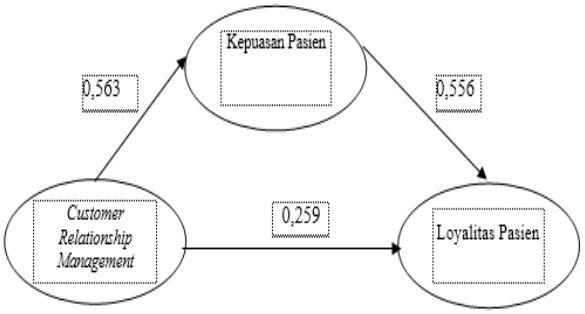

Figure 13. Calculation of CRM Sobel Test on Employee Loyalty with Patient Satisfaction as Mediator

Based on the calculation of the Sobel test, the tcount value is 2.855 > 1.97 (ttable), meaning that H0 is rejected. This shows that patient satisfaction can mediate the effect of CRM on patient loyalty.

Table 14 Hypothesis Testing Results

No	Relationship between variables	Pvalue	Information
1	Service quality Patient Satisfaction	0,000	Influenced
2	Physician Interpersonal Communication Patient Satisfaction	0,000	Influenced
3	*CRM* Patient Satisfaction	0,000	Influenced
4	Service quality Service quality	0,022	Influenced
5	Physician Interpersonal Communication Patient Loyalty	0,027	Influenced
6	*CRM* Patient Loyalty	0,023	Influenced
7	Patient Satisfaction Patient Loyalty	0,000	Influenced
8	Service quality Patient Satisfaction Patient Loyalty	-3,366	mediated
9	Physician Interpersonal Communication Patient Satisfaction Patient Loyalty	2,549	mediated
10	*CRM* Patient Satisfaction Patient Loyalty	2,855	mediated

5. Conclusion

Based on the conclusions on the hypothesis, conclusions can be formulated on the research problem, namely patient loyalty is influenced by service quality, doctor interpersonal communication, CRM and patient satisfaction. Patient satisfaction is influenced by service quality, doctor's interpersonal communication and CRM. Service satisfaction is able to mediate the effect of service quality, physician interpersonal communication and CRM on patient loyalty.

6. ADVICE

Based on the study results, the following recommendations can be made:

1. RSU Budi Rahayu Pekalongan to improve the quality of service to patients by increasing the use of modern and up-to-date medical devices and providing service information as promised
2. Doctors at RSU Budi Rahayu Pekalongan must improve the interpersonal communication of doctors by providing good answers to patient questions or ambiguous questions and providing motivation to patients who are confident they can beat their disease.
3. RSU Budi Rahayu Pekalongan should improve CRM by building good relationships with patients or their families and meeting individual patient needs quickly and accurately
4. RSU Budi Rahayu Pekalongan must increase patient satisfaction by providing alternative treatment options and having the integrity of the drugs that patients need.
5. RSU Budi Rahayu Pekalongan to maintain patient loyalty by improving service quality, fostering good relations with patients, strengthening communication with patients as appropriate.

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