



## **The effect of call center service quality on outpatient satisfaction level at St. Carolus Jakarta**

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**Abstract:** This study aims to analyze The Effect of Call Center Service Quality on Outpatient Satisfaction Levels at St Hospital. Carolus Jakarta. The variables studied are Service Quality (Reliability (X1) and Assurance (X2)) and Outpatient Satisfaction (Y). The type of research used is the type of research, and the type of data is primary. The technique of collecting research data is through the questionnaire method. Furthermore, the sampling technique used is purposive sampling with 75 respondents. Data analysis in this study used SPSS version 25. The analysis used in this research is a validity test, reliability test, multicollinearity test, heteroscedasticity test, normality test, multiple linear analysis, correlation coefficient analysis test t test, F test, and coefficient of determination (R<sup>2</sup>). The results of testing and analysis of this study show that the Assurance variable has a significant influence with a sig value of 0.000 < 0.05, a t-count value of 4.336 > t-table, and a beta ( $\beta$ ) value of 0.308, so it can be concluded that the Assurance variable (X2) has a significant influence significant to the dependent variable (Y), namely outpatient satisfaction.

**Keywords:** Reliability, Assurance, Outpatient Satisfaction

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### **1. Introduction**

The hospital as an institution engaged in the field of health services changed; at the beginning of its development, the hospital was an institution that had a social function, but the existence of a private hospital made the hospital referred more as an industry engaged in the field of health services by carrying out proper management. Based on corporate management. Based on data from the Ministry of Health in 2021, hospitals in Indonesia from 2016-2020 have increased by 12.86% (Figure 1). The number of hospitals 2016 was 2,601, increasing to 2,985 in 2020, consisting of 2,344 general hospitals (RSU). Moreover, 533 Special Hospitals (RSK),



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where private ownership accounts for more than 60% of the Hospitals spread across Indonesia (Figure 2).

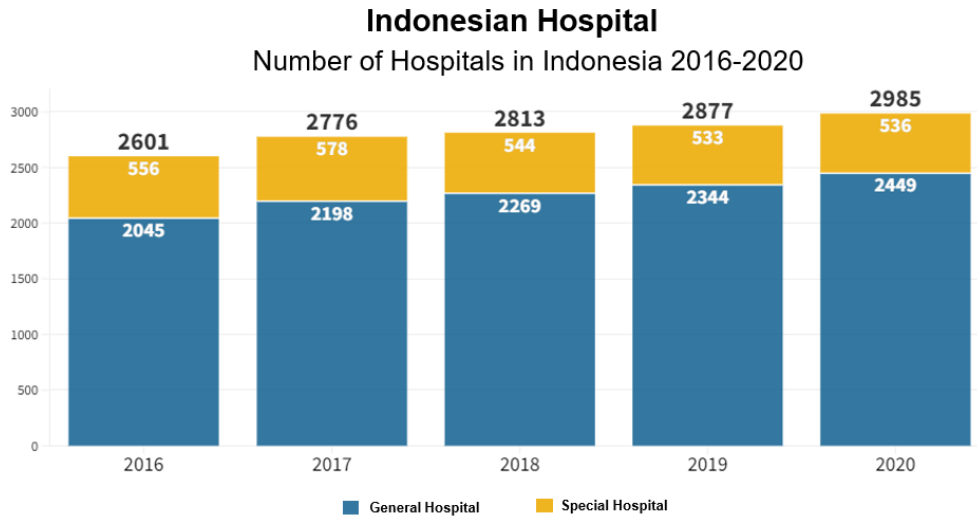


Figure 1. Number of Hospitals in Indonesia 2016-2020

### Development of Number of General Hospitals Based on Implementation

Organizer	2016	2017	2018	2019	2020
<b>Government</b>					
1 Ministry of Health	14	14	15	18	19
2 TNI/POLRI	161	164	158	159	160
3 Other Ministries and SOEs	67	62	55	51	52
<b>Total</b>	<b>242</b>	<b>240</b>	<b>228</b>	<b>228</b>	<b>231</b>
<b>Local government</b>					
1 Provincial government	75	87	91	92	97
2 Regency/City Government	564	585	614	640	676
<b>Total</b>	<b>639</b>	<b>672</b>	<b>705</b>	<b>732</b>	<b>773</b>
<b>Private</b>	<b>1164</b>	<b>1286</b>	<b>1336</b>	<b>1384</b>	<b>1445</b>
<b>Total</b>	<b>2045</b>	<b>2198</b>	<b>2269</b>	<b>2344</b>	<b>2449</b>

Source: Ditjen Pelayanan Kesehatan, Kemenkes RI 2021

Figure 2. Development of Number of General Hospitals Based on Implementation





There is competition between fellow hospitals, both government-owned and private-owned hospitals, all competing to attract consumers to use their services. With the rapid development of technology and increasingly fierce competition, hospitals must improve the quality of their services. With this competition, customer satisfaction is crucial in all business and service sectors, especially health services. For companies engaged in services, satisfying customer needs means providing quality service (Service Quality) to their customers. Hospitals, as health service institutions, are not only required to provide good public health services but also must be able to compete to maintain their survival by providing the best quality of service.

One of the hospital service units that need to be highlighted in improving the quality of hospital services is the activity of administrative officers at the front desk. These officers are the first access for outpatients to get all health services. This officer can also influence outpatient satisfaction by providing service recommendations and assessments. Therefore, we need a concept of good service methods to pay full attention to the needs and desires of consumers.

Kotler (2004: 42) defines customer satisfaction as a person's feelings of pleasure or disappointment that arise after comparing perceptions or impressions of the performance or results of a product and their expectations. If performance is below expectations, the customer is dissatisfied. If performance meets expectations, then the customer is satisfied. If performance exceeds expectations, the customer is very satisfied or happy. So, to increase customer satisfaction, hospitals must improve the quality of Call Center services in addition to aspects of hospital facilities, the role of doctors and nurses, both medical and non-medical.

This research was conducted at the Call Center Unit, St. Carolus Hospital, a private hospital founded in 1919.

## **2. Method**

This research was conducted from Dec 1 – 31, 2022, at Call Center Unit, St. Carolus Hospital. The research method used quantitative methods with purposive sampling with 75 respondents. Data analysis in this study used SPSS version 25.0. The analysis used in this research is the Validity Test, Reliability Test, Multicollinearity Test, Heteroscedasticity Test, Multiple Linear Analysis, T-Test, F Test, and Coefficient of Determination (R<sup>2</sup>).

## **3. Results and Discussion**

The framework of the research conducted is as follows:



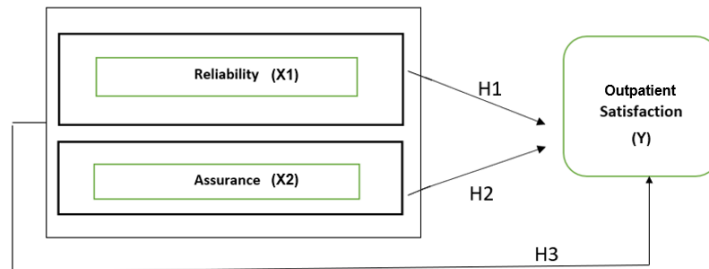


Figure 3 Thinking Framework

In this framework, we want to see whether the influence partially, either by Reliability (X1), Assurance (X2), affects Outpatient Satisfaction (Y) or whether this influence is carried out simultaneously by (X1 and X2) on Y.

**3.1 Hypothesis**

The hypothesis is a temporary conclusion of research that still has to be verified through research and data analysis.

H1: Reliability influences Outpatient Satisfaction; reliability refers to the consistency, dependability, and accuracy of healthcare delivery, including timely access to care, consistent communication, and reliable treatment outcomes.

H2: Assurance affects Outpatient Satisfaction; assurance refers to the competence, professionalism, and confidence conveyed by healthcare professionals, as well as the trustworthiness and credibility of the healthcare system.

H3: Reliability and Assurance Affect Outpatient Satisfaction; it proposes that the combined presence of reliability and assurance in healthcare services has a synergistic effect on outpatient satisfaction, meaning that the simultaneous presence of both factors enhances outpatient satisfaction more than either factor alone.

**3.2 Validity test**

From the results of filling out questionnaires to 75 respondents in this study, the following data were obtained: the majority of respondents aged between 20-35 years were 59 respondents (80%) (Table 1), the majority gender male, 54 respondents (74,2%) (Table 2).

Table 1 Age of Respondents

No	Age	Frequency (f)	Percentage (%)
1	20-35 year	59	80%
2	36-45 year	10	12%
3	>45 year	6	8%
Total		75	100%





**Table 2 Gender of Respondents**

No	Gender	Frequency (f)	Percentage (%)
1	Male	54	74,2 %
2	Female	21	25,8
Total		75	100%

The results of the analysis through SPSS on the validity of the data obtained valid data for Reliability, Assurance and Outpatient Satisfaction (Table 3)

**Table 3 Reliability, Assurance, and Outpatient Satisfaction Validity Test Results**

**Reliability Validity Test**

Question items	Table R Value	R Count Value	Information
X1.1	0,300	0,777	Valid
X1.2	0,300	0,788	Valid
X1.3	0,300	0,764	Valid
X1.4	0,300	0,828	Valid
X1.5	0,300	0,839	Valid
X1.6	0,300	0,801	Valid
X1.7	0,300	0,579	Valid
X1.8	0,300	0,727	Valid

**Assurance Validity Test**

Question items	Table R Value	R Count Value	Information
X2.1	0,300	0,799	Valid
X2.2	0,300	0,722	Valid
X2.3	0,300	0,815	Valid
X2.4	0,300	0,741	Valid
X2.5	0,300	0,793	Valid
X2.6	0,300	0,704	Valid
X2.7	0,300	0,744	Valid
X2.8	0,300	0,784	Valid
X2.9	0,300	0,788	Valid





Outpatient Satisfaction Validity Test

Question items	Table R Value	R Count Value	Information
Y.1	0,300	0,856	Valid
Y.2	0,300	0,875	Valid
Y.3	0,300	0,891	Valid
Y.4	0,300	0,903	Valid
Y.5	0,300	0,789	Valid

3.3 Reliability Test

A reliability test is a tool to measure a questionnaire which is an indicator of the variable. A questionnaire can be reliable if one's answers are consistent or stable over time. An instrument can be reliable if the Cronbach alpha value is > 0.60 (Pianda, 2018). The reliability test results of Reliability, Assurance, and Outpatient Satisfactory (Table 4).

Table 4 Reliability, Assurance, and Outpatient Satisfaction Reliability Test Results

Variable	Cronbach Alpha	Alpha	Information
Reliabilities	0,897	0,600	Reliable
Assurance	0,909	0,600	Reliable
Patient Satisfactory	0,915	0,600	Reliable

3.4 Testing Basic Assumptions and Classical Assumptions

Before testing the hypothesis, it is first tested whether the model formed is feasible to use as a model that behaves as a predictor model, meaning that the estimator produced is correct and predictable. To determine the feasibility of the resulting model in a simultaneous relationship, the model can be tested using the BLUE assumption (Best Linear Unbiased Estimator).

3.4.1 Basic Assumptions

a. Normality test

The normality test was carried out to find out whether, in the regression model, the dependent variable and the independent variable both have a normal distribution or not. A good regression model is a normally distributed regression model. The normality test can be carried out in various ways, including graphical analysis and the Kolmogorov–Smirnov sample test (KS) if  $A_{\text{symp. Sig}} > \text{Significant level } (\alpha)$  or normal data if the sig value  $(p) > 0.05$  and abnormal data if





the sig value (p) < 0.05. The histogram graphical display shown in (Figure 4) gives a normal distribution pattern because it spreads evenly to the left and right.

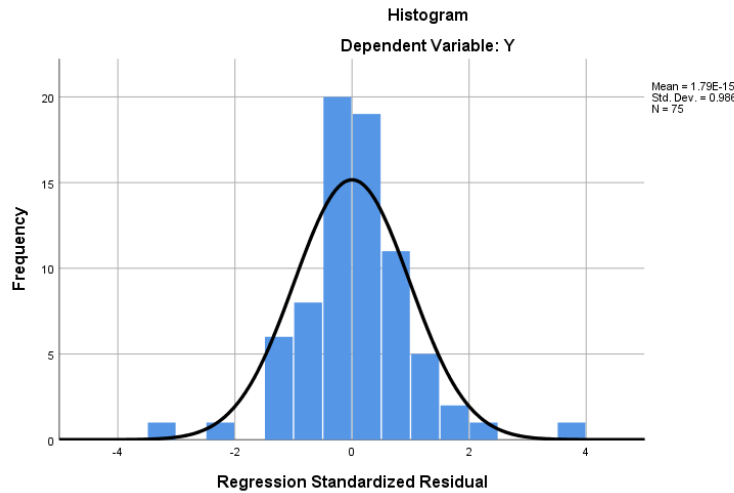


Figure 4 Normal Distribution

From the graph (Figure 4), it can be concluded that the regression model meets the normality assumption. Moreover, apart from graphical analysis, a normality test can be carried out by looking at the significant figures from Kolmogorov-Smirnov in the residual data (Table 5).

Table 5. One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		75
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	1.31293242
Most Extreme Differences	Absolute	.150
	Positive	.135
	Negative	-.150
Test Statistic		.150
Asymp. Sig. (2-tailed)		.000 <sup>c</sup>

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.





From (Table 5) the normality test results show that all variables are normally distributed; this can be seen from the significant Kolmogorov-Smirnov test of 0.135, greater than 0.05.

**b. Linearity Test**

The linearity test determines whether the relationship between the independent and dependent variables is linear. The relationship between the variables X and Y is linear if the rate of change in Y (Outpatient Satisfaction) associated with a change in one unit of X (Reliability and Assurance) is constant for a range of values. The analysis used in this study is the normal probability plot analysis and the probability comparison denoted by  $\alpha$ . The following is a linearity analysis for each relationship (Table 6).

Table 6. Linearity Analysis

Relationship	Parameter	Test	
		Result	Decision
X1, X2 - Y	• <i>Sig.F &lt; <math>\alpha</math></i>	• <i>The significance of F (0.000) is smaller than that of Alpha (0.05)</i>	Linear
X1 - Y	• <i>Sig.t &lt; <math>\alpha</math></i>	• <i>The significance of t (0.000) is smaller than Alpha (0.05)</i>	Linear
X2 - Y	• <i>Sig.t &lt; <math>\alpha</math></i>	• <i>The significance of t (0.000) is less than Alpha (0.05)</i>	Linear

Source: Primary data, processed in 2023

Then in (Figure 5), the normal plot chart shows that the dots spread around the diagonal line, and the distribution follows the direction of the diagonal line; it can be concluded that the regression model meets the assumption of linearity.





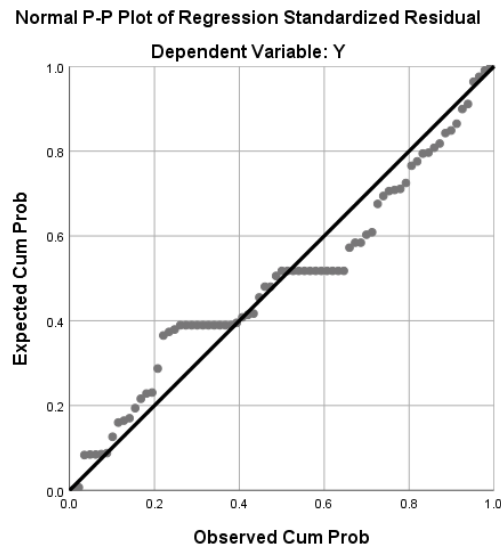


Figure 5. Linearity Analysis

3.4.2 Classical Assumptions

a. Multicollinearity Test

Multicollinearity is a problem that arises because of the linear relationship between the independent variables indicated by the presence of a high degree of collinearity. A good regression model should not correlate with the independent variables. A multicollinearity test was conducted to detect whether the regression model found a correlation between the independent variables; therefore, this test was only intended for simultaneous relationships. VIF: Inflation Factor Variance, which is one way to detect multicollinearity. A multi-colline-free regression model has a variance inflation factor (VIF) value of <10.

Table 7. Multicollinearity Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.672	1.242		1.346	.182		
X1	.224	.084	.327	2.653	.010	.285	3.507
X2	.308	.071	.534	4.336	.000	.285	3.507

a. Dependent Variable: Y





Based on (Table 7), it can be seen that for the two independent variables (reliability and assessment), the VIF score is  $3,507 < 10$ . Thus it can be concluded that the regression model has no multicollinearity problem.

### b. Heteroscedasticity Test

The heteroscedasticity test is intended to find out whether, in the regression model, there is an inequality of variance from one residual observation to another. It is called heteroscedasticity if the variance differs from one observation's residual to another. To determine whether there is heteroscedasticity in this study, it is done by looking at the scatterplot graph between the predicted value of the dependent variable (ZPRED) and its residual (SRESID).

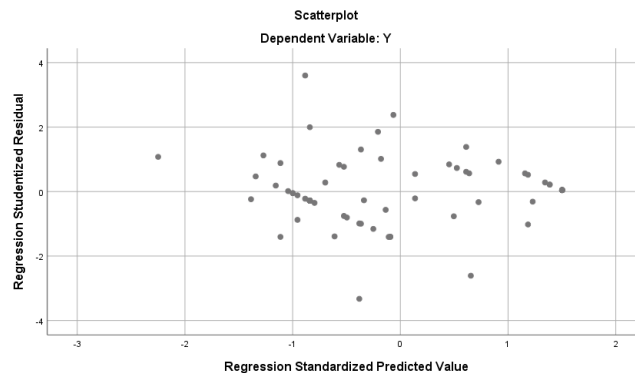


Figure 6. Scatter Plot

Based on (Figure 6) between SRESID and ZPRED, where the Y axis is the Y that has been predicted, and X is the residual (Y predicted with Y actually), which shows the dots spread randomly, do not form a clear pattern and are well spread over or below the number 0 on the Y axis, it can be concluded that there is no heteroscedasticity in the regression model.

### 3.5 Multiple Linear Regression Analysis Model

Multiple linear regression aims to determine whether two or more independent variables (X) affect variable (Y). Multiple linear regression can show the relationship between the two more clearly.

Table 7. Summary of Regression Results





Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,672	1,242		1,346	0,182
	X1	0,224	0,084	0,327	2,653	0,010
	X2	0,308	0,071	0,534	4,336	0,000

The t-test is conducted to see whether each of the independent variables has a partial effect on variable Y. From the results of the T-test, the regression equation is as follows:

$$Y = a + b_1X_1 + b_2X_2 + e$$

$$Y = 1.672 + 0.224X_1 + 0.308X_2 + e$$

Description: Y = Outpatient Satisfaction, X1 = Reliability, X2 = Assurance, Regression Coefficient (b1, b2), Error (e).

The t-test is intended to determine how high the influence of one independent variable (Reliability and Assurance) individually in explaining the dependent variable (Outpatient Satisfaction)

$$t \text{ table} = (a/2; n-k-1) = (0.025; 73) = 1.993$$

Description: a = The significance used is 0.05, n = number of data, k = Number of independent variables.

Hypothesis

a. Reliability Hypothesis Testing (H1)

The test results with SPSS were obtained for the Reliability variable. It is known that the Sig value for the effect of X1 on Y is 0.0010 < 0.05, the t count value is 2.653 > t table 1.993 and the beta (β) value is 0.224 so that it can be concluded that H1 is accepted, which means that there is an influence of X1 on Y.

b. Testing the Assurance Hypothesis (H2)

The test results with SPSS were obtained for the Assurance variable. It is known that the Sig value for the effect of X2 on Y is 0.000 < 0.05, the t count value is 4.336 > t table 1.993 and the beta (β) value is 0.308 so it can be concluded that H1 is accepted, which means that there is an influence of X2 on Y.

c. Testing the Outpatient Satisfaction Hypothesis (H3)

The results of testing with SPSS were obtained for the variable Outpatient Satisfaction. It is known that statistical calculations show the calculated F value = 79,424 with a significance of 0.000 < 0.05. This means that it can be concluded that Outpatient Satisfaction has a positive and significant effect on the Reliability & Assurance of call center staff at St. Carolus Hospital. Thus that H3 is accepted, and there is an influence on X1 and X2.

The results of multiple linear regression and the t-test in (Table 7) show that the first regression coefficient, the second coefficient and the third coefficient are positive and significant. The regression model can be further explained as follows:





1. Reliability variable (X1) significantly affects outpatient satisfaction (Y) with a regression value of 0.327 and t count = 2.653 with a significance level of 0.010.
2. Assurance variable (X2) significantly affects outpatient satisfaction (Y) with a regression value of 0.534 and t count = 4.336 with a significance level 0.000.
3. Outpatient satisfaction variable (Y) has a positive and significant influence on the Reliability Variable (X1) and Assurance Variable (X2) with a regression value of 140.713 and an F count = 79.424 with a significance level of 0.000.

**3.6 F Test**

An interesting thing to study in more depth is how, if seen partially, the Outpatient Satisfaction variable can influence the Reliability and Assurance of call center staff at St. Carolus Hospital.

$$F \text{ table} = F (k ; n-k) = F (2 ; 73) = 3,122$$

Table 8. F Test Regression Analysis

ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	281.426	2	140.713	79.424	.000 <sup>b</sup>
	Residual	127.561	72	1.772		
	Total	408.987	74			

a. Dependent Variable: Y

b. Predictors: (Constant), X2, X1

The results of the F test can be seen in column F (Table 8). Associated with the proposed hypothesis, the results of statistical calculations show the calculated F value = 79,424 with a significance of 0.000 < 0.05. This means that it can be concluded that outpatient satisfaction affects reliability and assurance.

**3.7 Correlation Coefficient (R) and Coefficient of Determination (R<sup>2</sup>)**

1. The correlation coefficient test (R) determines the relationship between two or more independent variables on the dependent variable together.
2. The coefficient of determination (R<sup>2</sup>) test measures how far the model can explain the variation of the dependent variable. The value of the coefficient of determination is between zero and one (Cecilia Engko, 2018). The value of the coefficient of determination can be seen in (Table 9).

Table 9. Coefficient Determination (R<sup>2</sup>)





Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.830 <sup>a</sup>	0,688	0,679	1,33104

a. Predictors: (Constant), X2, X1

b. Dependent Variable: Y

Based on the output (Table 9), it is known that the R square obtained is 0.688. This means that the effect of the reliability variable (X1) and the assurance variable (X2) on the outpatient satisfaction variable (Y) is 68.8%. Other variables not examined in this study influence the remaining 31.2% of outpatient satisfaction.

#### 4 Conclusion

Based on the results of the analysis that has been carried out in research and discussion, there is an influence of reliability on outpatient satisfaction; there is an influence of reliability on outpatient satisfaction; there is an influence of reliability and assessment simultaneously or together on outpatient satisfaction at St. Carolus Hospital. Of course, other factors not discussed in this study will affect outpatient satisfaction, such as responsiveness, empathy, and physical evidence. For the Hospital, it is recommended to maintain and always improve the quality of call center services. It must include routines, observe, and monitor its services to maintain the existing advantages and fix the deficiencies.

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