

Correlation between Doctor-Patient Communication with Patient Satisfaction and Loyalty

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Abstract: Effective communication between doctors and patients has been recognized as a key factor in influencing the patient's experience during treatment and will affect patient loyalty. This study aimed to investigate and analyze the correlation between doctor and patient communication with patient satisfaction and loyalty, in the context of health services. This was a cross-sectional study using a questionnaire as an instrument to collect data from several patients receiving outpatient treatment at the cardiovascular unit at XYZ Hospital. Data were analyzed multivariate using the PLS-SEM statistical method with SmartPLS[®]4 software. The results were obtained from 182 respondents who met the inclusion criteria taken in 2023 by purposive sampling with a questionnaire from individuals who had received cardiovascular outpatient services at XYZ Hospital. The five aspects of doctor communication skills were proven to have significant and positive effects. The strongest influence was shown in the empathy factor of communication by a doctor ($R^2 = 0.274$; p-value 0.011; CI 0.086 – 0.479). This study proved the positive impact of patient satisfaction on patient loyalty at XYZ Hospital. From the findings of this study, managerial implications could be drawn for the development of doctors' communication skills with patients, maintaining doctor quality, and strengthening the hospital image by providing the best services for patients. In conclusion, effective communication plays an important role in increasing patient satisfaction and loyalty toward health services in hospitals. It is necessary to maintain and improve skills in doctor-patient communication.

Keywords: effective communication; patient satisfaction; patient loyalty

INTRODUCTION

The health status of each country relies on the availability of healthcare facilities and services.¹ According to the Republic of Indonesia Law Number 44 of 2009, hospitals as healthcare institutions that provide individual and family health services, equipped with basic medical facilities and advanced medical services, as well as medical professionals, nurses, and other healthcare personnel with competence in the field of healthcare services.

In this modern era, the increasing number of healthcare service providers challenges for hospitals. The rising number of healthcare service providers leads to heightened competition, making patient loyalty crucial for the sustainability of hospitals.² Now, there are 3,122 operating hospitals in Indonesia, categorized into 69 type A hospitals, 434 type B hospitals, 1,666 type C hospitals, 867 type D hospitals, 57 primary clinics, and 29 hospitals that have not yet been classified.³

Among the various outstanding services offered by hospitals, integrated heart and vascular centers attract considerable attention. This is due to the high incidence and mortality rates associated with cardiovascular diseases. World statistical data for the year 2020 revealed a total annual death of 19.1 million cases due to cardiovascular events.⁴ In Indonesia, throughout the year 2022, the most prevalent cases of catastrophic diseases were cardiovascular diseases, with a total of 15.5 million reported cases.⁵

In providing these excellent services, numerous factors are associated with patient satisfaction. Patient satisfaction is a crucial key for making a particular hospital the preferred choice for treatment. Aspects of patient satisfaction contribute to patient loyalty in routine medical care. One of the factors playing a role in enhancing patient satisfaction is communication. Not only does communication between the hospital and the patient matter, but communication between the patient and the doctor also plays a crucial role.²

Patient complaints to healthcare personnel are found to be more often related to communication issues rather than clinical competence.⁶ Another research also indicates that 35–40% of patients are dissatisfied when consulting with doctors, specifically regarding doctor-patient communication.⁷ Effective communication between individuals can be achieved when it adheres well to the five laws of effective communication, known as "The 5 Inevitable Laws of Effective Communication." These five laws include Respect, Empathy, Audible, Clarity, and Humble, commonly abbreviated as REACH.⁸ Therefore, this research is focused on outpatient services in the cardiology outpatient department at XYZ Hospital, which serves as a type A referral hospital and an educational hospital.

METHODS

The objective of this research was to investigate and analyze the relationship between the effective communication aspects between doctors and patients during consultations and the impact on patient satisfaction and loyalty. This research utilized a cross-sectional method with respondents selected from the outpatient cardiovascular department.

Research data were collected through the completion of a questionnaire on *Google Forms* assisted by personnel. The measurement scale was the Likert scale with values ranging from 1 to 5, representing strongly disagree, disagree, neutral, agree, and strongly agree. The sample collection technique utilized purposive sampling. Inclusion criteria involved respondents aged over 18 years, capable of reading, and not experiencing dementia or other cognitive impairments.

The modified Communication Assessment Tools and Skala Kepuasan Interaksi Perubahan-11 questionnaires were used. This questionnaire was divided into 43 questions, comprising seven questions related to respect, five questions related to empathy, five questions related to audible, eight questions related to clarity, five questions related to humility, eight questions related to patient satisfaction, and five questions related to loyalty.^{9,10} The questionnaire was administered in the waiting area for doctor consultations and medication pickup at the cardiovascular outpatient department, following the completion of informed consent by the participants in the research.

There were six hypotheses in this research, as follows (Figure 1): H1: Respect has a positive influence on patient satisfaction; H2: Empathy has a positive influence on patient satisfaction; H3: Audible has a positive influence on patient satisfaction; H4: Clarity has a positive influence on patient satisfaction; H5: Humble has a positive influence on patient satisfaction; H6: Patient satisfaction has a positive influence on patient loyalty. The data were analyzed using the Partial Least Squares-Structural Equation Modeling (PLS-SEM) method with the SmartPLS[®]4 software. The chosen method for analysis is multivariate analysis.

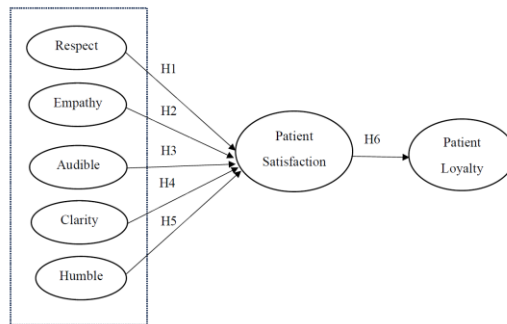


Figure 1. Six hypothesis of research model

RESULTS

A total of 182 respondents participated in this research. Table 1 showed that 60% of the respondents were aged over 50. About 44% of the respondents had an educational background equivalent to high school, with 25% being housewives. Additionally, 66% of the respondents were residing in Manado.

Table 1. Demographic profile of respondents

Description	Category	Total (n)	Percentage (%)
Sex	Male	118	65
	Female	64	35
	Total	182	100
Age (years)	<20	0	0
	21-30	5	3
	31-40	13	7
	41-50	54	30
	>50	110	60
	Total	182	100
Last education	Elementary school	14	8
	Junior high school	30	16
	Senior High school/equivalent	81	44
	Bachelor / Diploma	56	31
	Postgraduate (S2/S3)	1	1
	Total	182	100
Occupation	Civil servant	9	5
	Private employee	22	13
	Businessman	33	18
	Retired	32	17
	Housewife	46	25
	Other	40	22
	Total	182	100

Description	Category	Total (n)	Percentage (%)
Residence	Manado	120	66
	Out of town	62	34
Total		182	100

Table 2 showed five independent variables representing the five elements in the law of communication: respect, empathy, audible, clarity, and humble. Overall, respondents indicated "agree" to questions related to the independent variables. However, some respondents answered specific indicators with "strongly disagree" or "neutral." So, the respondents provided positive responses to the communication conducted by doctors while delivering services in the outpatient unit.

In the description of *the patient satisfaction* variable, Table 3 showed eight valid indicators with agreed responses. Overall, patients were satisfied with the doctor's communication during consultations.

Table 2. Independent variable description

Variables	Codes	Indicators	Mean	Median	Min	Max	SD
<i>Respect</i>	R1	Doctors introduce himself	3.648	4	2	5	0.709
	R2	Doctors greet patients when meeting	3.841	4	2	5	0.665
	R3	Doctors smile when meeting patient	3.846	4	1	5	0.686
	R4	Doctors patiently listen to patients complains	3.907	4	2	5	0.652
	R5	Doctors listen to patients' complaints until the end	3.863	4	2	5	0.661
	R6	Doctors have good responses to every patient' question	3.874	4	2	5	0.647
	R7	Doctors show a caring attitude towards patient	3.819	4	2	5	0.738
<i>Empathy</i>	E1	Doctors ask patients' conditions when meeting	3.769	4	2	5	0.704
	E2	Doctors are friendly during consultation with patients	3.791	4	2	5	0.68
	E3	Doctors create comfortable conversations with patients	3.863	4	2	5	0.694
	E4	Doctors can understand patients' problem	3.852	4	1	5	0.683
	E5	Doctors advise patients	3.824	4	1	5	0.712
<i>Audible</i>	A1	Doctors' pronunciation is clear	3.758	4	2	5	0.669
	A2	Doctors' intonation is good	3.797	4	1	5	0.701
	A3	Doctors' speaking tempo is good	3.736	4	1	5	0.746
	A4	Doctors' explained patients' condition fluently	3.841	4	1	5	0.673
<i>Clarity</i>	A5	Doctors' volume voice is good	3.769	4	2	5	0.704
	C1	Doctors' explanation is easy to understand	3.775	4	2	5	0.583
	C2	Doctors focus on important information	3.775	4	2	5	0.662
	C3	Doctors explain in detail about patients' illness	3.791	4	2	5	0.655
	C4	Doctors explain the treatment	3.797	4	2	5	0.572
	C5	Doctors tell all the information that patients want to know	3.841	4	1	5	0.585
	C6	Doctors make patients confident in overcoming their illness	3.753	4	2	5	0.654
	C7	Doctors involve patients in decision-making	3.797	4	1	5	0.661
<i>Humble</i>	C8	Doctors discuss the next treatment	3.83	4	2	5	0.619
	H1	Doctors always provide the best services	3.797	4	2	5	0.627
	H2	Doctors are willing to accept advice	3.786	4	1	5	0.698
	H3	Doctors honor the patients	3.857	4	2	5	0.576
	H4	Doctors put patients' interests first	3.841	4	2	5	0.631

Table 3. Patient satisfaction variable description

Variable	Codes	Indicators	Mean	Median	Min	Max	SD
Patient satisfaction	S1	I have understood my condition after talking with doctors	3.868	4	2	5	0.588
	S2	Doctors have already told me all the information about my illness	3.808	4	2	5	0.704
	S3	Doctors reduced anxiety about my illness	3.786	4	2	5	0.666
	S4	Doctors treated seriously my illness	3.863	4	1	5	0.644
	S5	I felt comfortable after talking with the doctors	3.874	4	2	5	0.663
	S6	I felt very understood by the doctors	3.852	4	1	5	0.691
	S7	I believed in doctors' treatment	3.819	4	2	5	0.588
	S8	I will follow doctors' advice	3.896	4	2	5	0.675

Table 4 showed the description of the patient loyalty variable indicates responses in the agreed category. Overall, patients express an intention to seek medical care again.

Table 4. Patient loyalty variable description

Variable	Codes	Indicators	Mean	Median	Min	Max	SD
Patient loyalty	L1	I would recommend this hospital's cardiovascular outpatient unit to others	4.027	4	2	5	0.474
	L2	I will tell other positive things about this cardiovascular outpatient unit hospital	4.005	4	3	5	0.438
	L3	I will undergo routine treatment in this hospital according to the schedule	3.978	4	2	5	0.48
	L4	This hospital's cardiovascular outpatient unit is my main priority	4.044	4	2	5	0.533
	L5	Routine treatment in this cardiovascular outpatient unit is the right choice	4.11	4	3	5	0.479

A total of 43 indicators were derived from external outcomes and incorporated into the research model (Appendix 1). The outer loading values for each variable exceeded 0.708, indicating reliability. The Cronbach's alpha values and point estimates (ρ_a) for all variables surpassed the required threshold of 0.7, demonstrating the successful testing of construct reliability.¹¹ The AVE values for each of the seven latent variables are greater than 0.50. Discriminant validity testing was conducted by examining the heterotrait-monotrait (HT/MT Ratio), with results below 0.9, indicating a high level of discrimination achieved for all variables.

The results of the inner model analysis (Appendix 2) indicate the standardized coefficients and p-values, demonstrating the significance of the five paths of dependent variables from doctor-patient communication to Patient Satisfaction. Furthermore, in the path from Patient Satisfaction to Patient Loyalty, significant p-values were also identified, where the p-values are less than 0.05. Additionally, the p-values between constructs and their reflective indicators can be observed. All of these values can be confirmed as significant since they indicate p-values less than 0.05.

Testing was conducted to identify the presence of multicollinearity in PLS-SEM using the Inner Variance Inflation Factor (Inner VIF) values. All values resulting from data processing were found to be less than 3, classifying them as ideal.

Table 5 showed the assessment of R-squared (R^2) for patient loyalty included in the model as a dependent variable yielded an R^2 value of 0.310, placing it in the category of moderate predictability.

Table 5. R-squared (R²) Value

Variables	R-squared
Patient loyalty	0.310
Patient satisfaction	0.772

Table 6 showed the evaluation of the influence of variables in the modeling utilized the f-squared (f²) test values. In the patient satisfaction path, all paths were found to have a small effect size, while in the patient loyalty path, the f² value was found to be 0.450, categorizing it as having a large effect size.

Table 6. f-squared (f²) value

Path	f ²	p-values	T-statistics	Category
Audible -> Patient satisfaction	0.067	0.158	1.001	Small effect size
Clarity -> Patient satisfaction	0.074	0.161	0.992	Small effect size
Empathy -> Patient satisfaction	0.131	0.153	1.023	Small effect size
Humble -> Patient satisfaction	0.125	0.102	1.268	Small effect size
Patient satisfaction -> Patient Loyalty	0.450	0.000	3.409	Large effect size
Respect -> Patient satisfaction	0.092	0.122	1.167	Small effect size

The assessment of the model's predictive ability is conducted by examining the Q2_predict value. Table 7 showed that the patient satisfaction variable has a high level of predictive significance (Q2_predict) at 0.736, whereas for patient loyalty, the Q2_predict value is 0.216, categorizing it as small predictive relevance.

Table 7. Q2_predict value

Variables	Q ² _predict	RMSE	MAE
Patient loyalty	0.216	0.904	0.672
Patient satisfaction	0.736	0.523	0.338

Table 8 showed that the latest approach assesses the overall model's ability using Cross-Validated Predictive Ability (CVPAT).

Table 8. CVPAT value

Variables	PLS-SEM vs Indicator average (IA)		PLS-SEM vs Linear model (LM)	
	Average loss difference	p-value	Average loss difference	p-value
Patient loyalty	-0.033	0.014	-0.056	0.000
Patient satisfaction	-0.249	0.000	-0.059	0.000
Overall	-0.166	0.000	-0.058	0.000

Table 9 showed that the results of the hypothesis testing for all paths indicated significant positive outcomes, thereby supporting the proposed hypothesis.

The statistical analysis results of IPMA, in the form of mapping variables or indicators, identify which ones need prioritization in the decision-making process. Figure 2 showed that the variables of empathy and humility were positioned in the upper right quadrant. These variables were considered the most important by respondents due to their highest total effect values. The position of respect was in the lower right quadrant, indicating that this variable was important but not well-perceived by patients.

Furthermore, Figure 3 showed that the group of indicators considered important but not yet showing good performance in the eyes of respondents included indicators E3, E2, H4, E1, H1, H3, A2, A1, and R5.

Table 9. Significance and coefficient

	Hypothesis	Std Coefficient	P-values	Confidence Intervals		Result
				5,0% (lower)	95,0% (upper)	
H1	Respect -> Patient satisfaction	0.227	0.008**	0.075	0.388	Hypothesis supported
H2	Empathy ->Patient satisfaction	0.274	0.011*	0.086	0.479	Hypothesis supported
H3	Audible -> Patient satisfaction	0.186	0.016*	0.036	0.321	Hypothesis supported
H4	Clarity-> Patient satisfaction	0.17	0.018*	0.048	0.316	Hypothesis supported
H5	Humble-> Patient satisfaction	0.216	0.004**	0.088	0.352	Hypothesis supported
H6	Patient satisfaction -> Patient loyalty	0.557	0.000**	0.467	0.644	Hypothesis supported

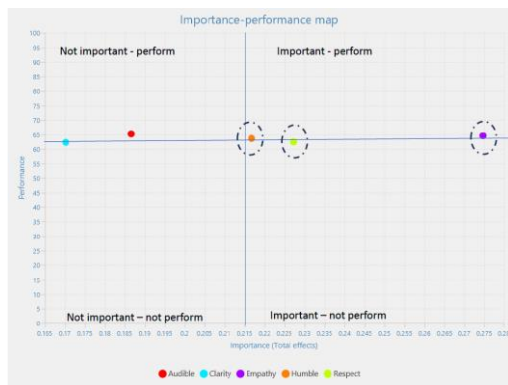


Figure 2. IPMA Construct

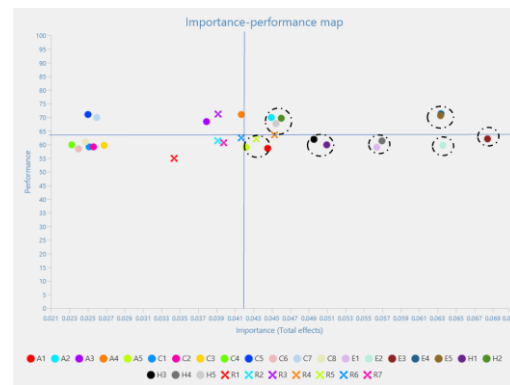


Figure 3. IPMA Construct

Heterogeneity data analysis can be conducted using the Finite Mixture method or FIMIX PLS, which has evolved into the Partial Least Squares-Prediction-Oriented Segmentation (PLS-POS) method. Table 10 showed that the calculation results using the PLS-POS menu were determined to be divided into two segments.

Table 10. PLS-POS results

Variables	Original R ² n = 182	R ² segment 1 n = 40	R ² segment 2 n = 142
Patient loyalty	0.310	0.962	0.246
Patient satisfaction	0.772	0.994	0.799

DISCUSSION

The purpose of this research is to understand and assess how doctor-patient communication influences the happiness and loyalty of patients toward the services provided by the cardiology clinic. Effective communication is examined through the elements of respect, empathy, audible, clarity, and humble.

The five aspects of effective communication laws, serving as independent variables, demonstrate positive and significant results in influencing patient satisfaction, which subsequently impacts patient loyalty. This aligns with outcomes from previous research conducted in Iran, where effective communication by medical staff, particularly nurses, provided comfort to patients and ultimately enhanced patient satisfaction. In Indonesia, specifically in RSUD Sjahranie Samarinda, the effective communication skills of doctors toward patients have a significant impact on patients' perceptions of their hospital experiences.⁹

Good patient satisfaction ultimately has a positive impact on patient loyalty. This is consistent with previous research, where the positive effect of patient satisfaction increased the intention of patients to return for treatment at the same hospital, and they might willingly recommend the healthcare services to others.¹²

The results of the structural model analysis indicate that the empathy variable has a significant impact on the satisfaction of patients. This outcome aligns with previous research, where the empathy factor had an influence 0.264 times greater than other independent variables in determining patient satisfaction.¹³⁻¹⁵ Communication that conveys empathy involves a deep understanding of the experiences, worldviews, and socio-cultural backgrounds of each person. It goes beyond merely applying theoretical principles, as it encompasses the ability to feel and connect with the emotions and perspectives of individuals emotionally and intuitively.¹²

The ability of doctors to empathize and understand patients makes them feel noticed and fosters effective communication. Patients become satisfied with the doctor's communication style when it is comforting, involves inquiries about the patient's well-being, and responds to concerns or complaints in a friendly manner. Patient satisfaction levels increase when doctors understand and respond well to what patients communicate.¹⁶

The creation of communication imbued with empathetic understanding encourages patient openness. This condition can help doctors gain a deeper understanding of the patient's situation and maximize treatment. Demonstrating empathy can help overcome many barriers to successful communication. One method to outperform the competition is by prioritizing the dimension of empathy in service delivery.¹⁷ The influence of the empathetic dimension on creating satisfaction can be explained by the role of empathy in building patient trust in the doctor. Doctor-patient understanding, information delivery, and satisfaction have all been proven to increase when communicators adopt an approach of acceptance and understanding of others' sentiments.^{7,15} Building a trustworthy connection requires empathy.¹⁸

Empathy emerges as a crucial outcome in this research and is confirmed to have a significant positive impact on patient satisfaction. This condition is expected to influence patient loyalty. Therefore, doctors and hospital management need to pay attention to providing good service quality, particularly in the field of doctor consultation services.

There are several limitations to this research. First, the research respondents were drawn from only one hospital, limiting the generalization of the outcomes; second, the potential for bias during sample selection; and third, the failure to analyze patient behavior and treatment adherence.

CONCLUSION

The five aspects of effective communication laws, serving as independent variables—namely respect, empathy, audible, clarity, and humble—significantly influence patient satisfaction and loyalty. The empirical model of this research is found to have a moderate predictive accuracy substantial (R^2) and medium predictive relevance (Q^2) on patient loyalty as the predicted dependent variable.

Conflict of Interest

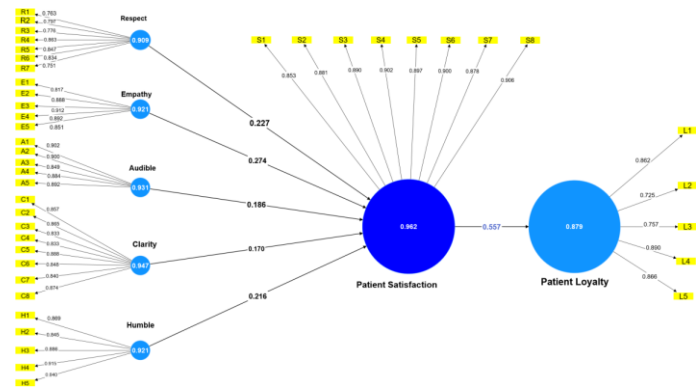
The research outcomes are for educational purposes only, without any other commercial interests.

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Appendix 1: Outer Model PLS-SEM



Appendix 2: Outer Model PLS-SEM

