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The Effect of Hospital Service Quality, Perceived Value, and Perceived Price on Patient Loyalty and Patient Satisfaction

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Abstract: Public health centers play a strategic role in shaping positive patient experiences that influence satisfaction and loyalty. This study aims to analyze the influence of service quality, perceived value, and perceived price on patient satisfaction and loyalty. Using a quantitative explanatory approach, data were collected from 397 respondents selected through purposive sampling from the 2023 patient population. The analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results show that service quality and perceived value have a positive and significant effect on patient satisfaction, while perceived price has a moderate influence. Patient satisfaction significantly mediates the relationship between the three independent variables and patient loyalty. These findings highlight the importance of improving service quality and enhancing perceptions of value and pricing to create a satisfying healthcare experience and foster long-term loyalty. The study provides practical insights for healthcare managers to strengthen service delivery and offer transparent pricing information, as well as empirical evidence for developing strategies to improve primary healthcare services based on patient satisfaction and loyalty.

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INTRODUCTION

Puskesmas as the spearhead of first-level health services have an important role in supporting public health programs in Indonesia (Yustina & Yohanes Budisarwo, 2020). As a public service institution, Puskesmas is required not only to provide adequate medical services, but also to pay attention to service quality, perceived patient value, and perceptions of the price of services charged (Susmiati & Mustofa, 2024). These three factors are important determinants in shaping patient satisfaction and loyalty.

The quality of health services is a key factor that influences people's perceptions of the effectiveness and efficiency of Puskesmas services. Responsive, friendly, and professional services will foster a sense of satisfaction in patients and encourage the desire to return to utilize these services. Conversely, if the services provided do not meet expectations, patients tend to look for alternative health facilities (Flaviana et al., 2023; Imran et al., 2021; Wulandari et al., 2020).

In addition to service quality, the perceived value or benefit that patient feel for the services received also plays an important role (Nguyen et al., 2021). Patients tend to be loyal when they feel that the services provided are worth the time, effort, and costs incurred.

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This perceived value reflects the comparison between expectations and reality experienced during the service process (Eris, 2022; Tuncer et al., 2021).

Price perception is also a determining factor in shaping patient satisfaction. In the context of public services such as health centers, where prices are often determined by government policies, perceptions of fairness and affordability of prices are important indicators. Prices that are considered fair and in accordance with service quality can increase patient satisfaction and loyalty (Febriani & Cipta, 2023; Pertiwi et al., 2022; Rahman et al., 2022).

The phenomenon that occurs in some Puskesmas shows fluctuations in patient visits that can be an indication of decreased satisfaction or loyalty. One example can be seen in the trend of visits at Puskesmas Benowo, which has decreased in certain months despite a general increase in the number of annual patients. This suggests the need to evaluate the factors that influence patient satisfaction and loyalty.

Seeing the important role of service quality, perceived value, and perceived price in influencing patient loyalty and satisfaction, this study was conducted to examine the relationship between these three variables in the context of services at Puskesmas. It is expected that the results of this study can contribute to efforts to improve the quality of basic health services, especially in health centres as the frontline of public services.

The purpose of this study is to analyse and explain the effect of service quality, perceived value, and perceived price on patient satisfaction and loyalty at Puskesmas Benowo Surabaya. This study specifically aims to identify the extent to which the three independent variables affect patient satisfaction, as well as how patient satisfaction acts as a mediator in shaping loyalty to the health services provided. By understanding the relationship between these variables, this study is expected to provide an empirical contribution to the development of strategies to improve the quality of health services at the Puskesmas, so as to create a satisfying experience and encourage long-term patient loyalty.

Based on the above background, the hypothesis of this study is as follows:

H1 : Health Service Quality Affects Patient Satisfaction
H2 : Perceived Value Affects Patient Satisfaction
H3 : Price Perception Affects Patient Satisfaction
H4 : Quality of Health Services Affects Patient Loyalty
H5 : Perceived Value Affects Patient Loyalty
H6 : Price Perception Affects Patient Loyalty
H7 : Patient Satisfaction Affects Patient Loyalty.

METHODS

This study used a quantitative approach with an explanatory type of research that aims to explain the causal relationship between the independent variables, namely health service quality, perceived value, and perceived price, on the dependent variables of patient satisfaction and patient loyalty. This research design aimed to test hypotheses through data collection from respondents and analysed using statistical methods.

The population in this study were patients who received services at the Benowo Surabaya Health Center in 2023, namely 60,760 people, with sampling using purposive sampling technique, which is a sampling technique based on certain criteria so that the data obtained is relevant to the research objectives. The sample criteria used in this study include respondents who are patients who seek treatment at the Benowo Health Center at least 2x visits in the last 1 year, male and female respondents, and respondents aged from 20 years to 59 years. The number of respondents in this study was 397 people, which is considered to represent the population adequately. The value was obtained through the use of the Slovin formula as follows:

$$n= N\ 1+N\ (e)2$$

Description:

- *n* = number of samples
- *N* = total population
- *e* = maximum tolerable error limit (margin of error)

By using a *margin of error of* 0.05 (5%), the number of samples that can be taken is:

$$n= 607601+60760\ (0,05)2$$

$$n= 396,4=397$$

Based on the results of the above calculations, the number of samples used is at least 397 respondents.

The data collection instrument used a Likert scale-based closed questionnaire, which has been tested for validity and reliability. Instrument validity was tested using outer loading, and reliability was tested with composite reliability and Cronbach's alpha, in accordance with the provisions in the Partial Least Square - Structural Equation Modelling (PLS-SEM) method using SmartPLS software. This technique was chosen because it is able to analyse complex relationships between variables, including mediation effects and indirect relationships, as was done in this study.

RESULTS AND DISCUSSION

This research uses data analysis techniques with the product moment correlation method from Pearson correlation using SPSS software version 26.

Validity Test

The validity test is used to assess whether a questionnaire is valid or not. A questionnaire is said to be valid if the questionnaire questions are able to reveal something that is measured by the questionnaire. Based on the results of the validity test of the product moment correlation technique from Pearson correlation on the variable scale of Health Service Quality (X1), Value Perception (X2), Price Perception (X3), Patient Satisfaction (Z) on Patient Loyalty (Y). The questionnaire was distributed to 30 respondents who were patients who sought treatment at the Benowo Health Center in the last 1 year which was tested and declared all items were valid. On the basis of calculations where n = 30, the r table value is 0.361. To prove that the item score is valid, the calculated r value must be greater than the r table value. To clarify this assumption, it can be known as follows:

Table 1. Validity Test Results

No.	Variables	Item	R Table	R Count	Description
1	Quality of Health Services (X1)	KLK1	0,361	0,435	Valid
		KLK2	0,361	0,413	Valid
		KLK3	0,361	0,723	Valid
		KLK4	0,361	0,710	Valid
		KLK5	0,361	0,792	Valid
		KLK6	0,361	0,628	Valid
		KLK7	0,361	0,743	Valid
		KLK8	0,361	0,853	Valid
		KLK9	0,361	0,772	Valid
		KLK10	0,361	0,893	Valid
		KLK11	0,361	0,800	Valid
		KLK12	0,361	0,645	Valid

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		KLK13	0,361	0,526	Valid
		KLK14	0,361	0,717	Valid
		KLK15	0,361	0,784	Valid
		PN1	0,361	0,807	Valid
		PN2	0,361	0,694	Valid
2	Perceived Value (X2)	PN3	0,361	0,786	Valid
		PN4	0,361	0,637	Valid
		PN5	0,361	0,806	Valid
		PH1	0,361	0,295	Invalid
		PH2	0,361	0,328	Invalid
		PH3	0,361	0,261	Invalid
3	Price Perception (X3)	PH4	0,361	0,967	Valid
		PH5	0,361	0,984	Valid
		PH6	0,361	0,961	Valid
		PH7	0,361	0,845	Valid
		KP1	0,361	0,890	Valid
4	Patient Satisfaction (Z)	KP2	0,361	0,789	Valid
		KP3	0,361	0,792	Valid
		LP1	0,361	0,680	Valid
5	Patient Loyalty (Y)	LP2	0,361	0,835	Valid
		LP3	0,361	0,835	Valid

Source: SPSS output (2025)

Based on the results of the initial validity test conducted on 30 respondents, it is known that all items on the research variables have a calculated r value greater than r table (>0.361) so that all items are declared valid. However, there is a Price Perception variable (X3) on items PH1, PH2 and PH3 showing the value of r count less than r table (<0.361), so the three items are declared invalid or cannot be used for research analysis.

Reliability Test

Reliability test is conducted to prove the accuracy, consistency and accuracy of the instrument in measuring constructs (Ghozali, 2021). From the results of the reliability test of all variables to 30 respondents who are patients who seek treatment at the Benowo Health Center in the last 1 year, using the Cronbach's Alpha statistical test formula using SPSS, the reliability test results of all variables are obtained, as follows:

Table 2. Reliability Test Results

No.	Variables	Standard *Cronbach's Alpha*	*Cronbach's Alpha*	Description
1	Quality of Health Services (X1)	0,60	0,922	Reliable
2	Perceived Value (X2)	0,60	0,786	Reliable
3	Price Perception (X3)	0,60	0,855	Reliable
4	Patient Satisfaction (Z)	0,60	0,762	Reliable
5	Patient Loyalty (Y)	0,60	0,690	Reliable

Source: SPSS output (2025)

The results of the reliability test conducted on all variables in this study show a good level of consistency, with the Cronbach's Alpha value for each variable exceeding the recommended minimum limit (0.60). The Health Service Quality variable (X1) has the highest Cronbach's Alpha value of 0.922, which indicates excellent reliability, followed by

the perceived value variable (X2) with a value of 0.786, perceived price (X3) of 0.855, and patient satisfaction (Z) which reaches 0.762, all of which show strong reliability. Although the Patient Loyalty (Y) variable has a slightly lower Cronbach's Alpha value of 0.690, this value still meets accepted reliability standards, indicating that all instruments used in this study can be relied upon to consistently measure the variables in question.

The approach to analysing second order factors is to use the repeated indicators approach or also known as the hierarchical component model. Although this approach repeats the number of manifest variables or indicators, this approach has the advantage that this model can be estimated with the standard PLS algorithm (Ghozali, 2021).

PLS-SEM analysis usually consists of two sub models, namely the measurement model or often called the outer model and the structural model or often called the inner model. The measurement model shows how manifest or observed variables represent latent variables to be measured. Meanwhile, the structural model shows the strength of the estimate between latent variables or constructs (Ghozali, 2021).

Based on the above definition, the PLS analysis model can be said to be the development of a path model which has several advantages such as data does not have to be normally distributed, the model does not have to be based on theory and also the sample used is small. According to Ghasemy et al. (2020), there are several terms related to SEM, including: (1) Latent Construct, is a process or event in an observation that is formulated conceptually and requires indicators to clarify it; (2) Manifest variable, is the value of observations in the specific part asked either from respondents who answer questions or observations made by researchers. In this study, manifest variables are question items / statements of each hypothesized variable or can be interpreted as indicators in each variable; (3) Exogenous Variables and Endogenous Variables, are causal variables that are not influenced by other variables but have an effect on other variables, while endogenous variables are variables that are explained by exogenous variables; (4) Intervening variables, are variables that theoretically affect the relationship between exogenous and endogenous variables, but cannot be measured and observed; (5) According to (Ghozali, 2021), in using the Partial Least Square (PLS) method, several steps that can be carried out in PLS analysis are as follows: (a) Designing the Measurement Model: The measurement model (outer model) is a model that connects latent variables with manifest variables. For latent variables hospital service quality, perceived value, perceived price (X), patient satisfaction (Z), and patient loyalty (Y) consists of 19 manifest variables; (b) Designing the Structural Model: The structural model (inner model) in this study consists of one exogenous latent variable, namely hospital service quality, perceived value, perceived price (X). Building a Path Diagram; (c) The relationship between variables in a flowchart can help in framing the causal relationship between constructs from the previous theoretical model. Furthermore, the model fit measurement is carried out (Ghozali, 2021).

Model Measurement (Outer Model)

The outer model is often called (outer relation or measurement model) which defines how each indicator block relates to its latent variable.

The measurement model (outer model) is used to assess the validity and reliability of the model. The validity test is carried out to determine the ability of the research instrument to measure what should be measured. Meanwhile, the reliability test is used to measure the consistency of the measuring instrument in measuring a concept or it can also be used to measure the consistency of respondents in answering statement items in a questionnaire or research instrument.

Convergent validity

Convergent validity tests in PLS with reflective indicators are assessed based on the loading factor (correlation between item scores / component scores and construct scores) of the indicators that measure the construct. (Ghozali, 2021) suggests that the rule of thumb

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that is usually used to make an initial examination of the factor matrix is ± 30 is considered to have met the minimum level, for loading ± 40 is considered better, and for loading ± 50 is considered practically significant. Thus, the higher the factor loading value, the more important the loading is in interpreting the factor matrix. The rule of thumb used for convergent validity is outer loading> 0.6, communality> 0.5 and average variance extracted (AVE)> 0.5 (Ghozali, 2021).

Discriminant Validity

Discriminant validity tests are assessed based on the cross loading of measurements with their constructs. Another method used to assess discriminant validity is to compare the AVE root for each construct with the correlation between constructs and other constructs in the model. The model has sufficient discriminant validity if the AVE root for each construct is greater than the correlation between constructs and other constructs in the model (Ghozali, 2021).

Composite Reliability

To determine composite reliability, if the composite reliability value ρc> 0.8, it can be said that the construct has high reliability or reliability and ρc> 0.6 is said to be quite reliable (Ghozali, 2021).

Cronbach's Alpha

In PLS, the reliability test is strengthened by the presence of Cronbach alpha where the consistency of each answer is tested. Cronbach's Alpha is said to be good if α> 0.5 and is said to be sufficient if α> 0.3 (Ghozali, 2021).

Table 3. Outer Model Evaluation Rule of Thumbs Parameters

Outer Model Evaluation	Parameters	Rule Of Thumbs
Convergent validity	Loading factor	More than 0.6
Discriminant Validity	Average variance extracted (AVE)	More than 0.5
Composite Reliability	Composite Reliability	More than 0.6
Cronbach's Alpha	Cronbach's Alpha	More than 0.6

Source: Ghozali (2021)

Structural Model Evaluation (Inner Model)

The structural model (inner model) is a structural model to predict the causal relationship between latent variables. Through the bootstrapping process, T-statistic test parameters are obtained to predict the existence of causal relationships. The structural model (inner model) is evaluated by looking at the percentage of variance explained by the R2 value for the dependent variable using the Stone-Geiser Q-square test (Ghozali, 2021) and also looking at the magnitude of the structural path coefficient. Because PLS is designed for recursive models, the relationship between latent variables, each dependent latent variable, or often called the causal system of latent variables.

R-Square (R2)

R-square is seen from the value of endogenous variables as the predictive power of the structural model. Changes in the R2 value can be used to explain the effect of certain exogenous latent variables on endogenous latent variables whether they have a substantive effect. R-square values of 0.75, 0.50, and 0.25 can be concluded that the model is strong, moderate and weak (Ghozali, 2021). This means that the higher the R2 value, the better the prediction model and the proposed research model.

Q2 Predictive Relevance

According to Samartha (2020) to measure how well the observation value produced by the model and also the parameter estimate can use Q2 predictive relevance or the coefficient of total determination in path analysis (similar to R2 in regression). A value of Q2> 0 indicates that the model has predictive relevance, while a value of Q2 <0 indicates that the model lacks predictive relevance (Ghozali, 2021). This is very important to ensure that the model used is not only statistically significant but also relevant.

Goodness Of Fit (GoF) Index

PLS path modelling can identify global optimization criteria to determine goodness of fit with the Gof index. Goodness of fit or Gof index is used to evaluate the overall fit of the measurement model and structural model while providing a simple measurement for the overall predictability of the model. The GoF value criteria are 0.10 (GoF small), 0.25 (GoF medium) and 0.36 (GoF large) (Ghozali, 2021).
Using Q^2 and GoF, to ensure that the relationships between variables in the model not only exist but are also significant and relevant.

Parametric Statistical Tests and Hypothesis Testing

According to Sugiyono (2021), the hypothesis is a temporary answer to the formulation of research problems, where the research formulation has been stated in the form of a statement sentence. It is said to be temporary, because the answers are given to empirical facts obtained through data collection. So, the hypothesis is also stated as a theoretical answer to the formulation of research problems, not yet an empirical answer.
Test decision:

If t-count > t-table, and the significance p-value is smaller than 0.05 or α < 5% then H1 is accepted and H0 is rejected, meaning the relationship between variables is significant. Hypothesis conclusion: "There is a significant relationship between the independent variable and the dependent variable. This means that the hypothesis is accepted".

If t-count < t-table, and the significance p-value is greater than 0.05 or α > 5% then Ho is accepted and H1 is rejected, meaning that the relationship between variables is not significant. Hypothesis conclusion: "There is no significant relationship between the independent variable and the dependent variable. This means that the hypothesis is rejected".

Effect size

Effect size is a measure used to assess the strength of the relationship between predictor variables and response variables. It is interpreted whether the predictor variable has a strong, moderate, or small influence at the structural level. The effect size value is strong (0.35), moderate (0.15), small (0.02).

Table 4. Inner Model Evaluation Rule of Thumbs Parameters

Inner Model Evaluation	Parameters	***Rule Of Thumbs***
R-Square (R2)	Change in R^2value	*R-square* values of 0.75=strong, 0.50=moderate, and 0.25=weak
Q2 Predictive Relevance	Q2 Value	Q2 > 0= has predictive relevance Q2 < 0= has less predictive relevance
Goodness Of Fit (GoF) Index	*GoF Value*	0.10 (GoF small), 0.25 (GoF medium) and 0.36 (GoF large).
Significancy test (hypothesis testing)	P-value	< 0,05
Effect size	*Effect size value*	Weak effect size= 0.02 Moderate effect size = 0.15 Strong effect size = 0.35

Source: Ghozali (2021)

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CONCLUSION

This study concludes that service quality, perceived value, and perceived price have a significant influence on patient satisfaction, which in turn affects patient loyalty at Puskesmas Benowo Surabaya. Service quality proved to be a dominant factor in shaping patient satisfaction because responsive, friendly, and professional services are able to create a positive experience during the treatment process. Perceived value also contributes greatly to satisfaction, as patients feel that the service received is worth the cost, time, and effort they spend. Meanwhile, perceived price has a more moderate influence, but is still relevant in creating a sense of fairness and affordability. Furthermore, patient satisfaction acts as a mediating variable that strengthens the relationship between the three independent variables and patient loyalty. This suggests that to increase loyalty, it is not enough to provide good service, but also to ensure that patients are thoroughly satisfied with the services received. Therefore, Puskesmas managers need to design service quality improvement strategies that touch all aspects of the patient experience, from the administrative process, interactions with medical personnel, to the transparent delivery of price information. This holistic approach will strengthen satisfaction while fostering sustainable loyalty.

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