Journal of Social Research
P-ISSN: 2827-9832
E-ISSN: 2828-335x
Vol.5, No.1, Desember 2025
http://ijsr.internationaljournallabs.com/index.php/ijsr

The Effect of Service Quality, Physical Environment, and Medical Staff Kindness & Consideration on Patient Loyalty with Patient Satisfaction as a Mediating Variable in General Hospitals in Serui

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ABSTRACT

This study aims to analyze the impact of service quality, physical environment, and medical staff kindness and consideration on patient loyalty, with patient satisfaction as a mediating variable, at the General Hospital of Serui (RSUD Serui). A quantitative research design was employed, with data collected from 160 outpatients selected through purposive sampling. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results confirm that service quality, physical environment, and medical staff kindness and consideration have positive and significant effects on patient satisfaction. Furthermore, patient satisfaction significantly mediates the relationship between these three variables and patient loyalty. The findings suggest that enhancing service quality, improving the comfort and cleanliness of the physical environment, and fostering empathetic and kind interactions from medical staff are critical to increasing patient satisfaction, which in turn strengthens patient loyalty. Managerial implications highlight the need for RSUD Serui to prioritize staff training in communication and empathy, upgrade facility infrastructure—particularly ventilation and cleanliness—and streamline administrative processes through technology to build sustainable patient relationships.

Keywords: *Service Quality, Physical Environment, Medical Staff Kindness & Consideration, Patient Satisfaction, Patient Loyalty*

INTRODUCTION

Public health and sustainable development are greatly influenced by the function and accessibility of health care facilities in a country (WHO, 2020). The improvement of Indonesia's health service system is focused on the efficiency and effectiveness of medical institutions such as clinics, hospitals, and community health centers (puskesmas). Health service facilities are defined in Law No. 36 of 2009 as a means used by the public, commercial, and non-profit sectors to coordinate promotive, preventive, curative, and rehabilitative health service activities. According to the Ministry of Health of the Republic of Indonesia (2021), the health system in Indonesia is outlined in Article 13 paragraph 3 of Government Regulation Number 47 of 2016 which regulates health service facilities.

The increase in the number of health facilities in Indonesia shows the high public demand for health services (Harun et al., 2021). As the number of hospitals increases, competition among health facilities is also getting tighter. The more able the hospital is to provide quality service, the greater the opportunity to get customer satisfaction and loyalty (Safitri et al., 2020). However, patient loyalty is not only determined by the quality of services and facilities, but also by the overall patient experience. Patients who are satisfied with the health services they receive will develop trust and intention to revisit the same hospital in the future (Nahima et al., 2024).

This research is focused on the outpatient unit at Serui Hospital, with the aim of giving us a better picture of what drives patient loyalty in an increasingly competitive rigorous

healthcare sector. The following is data on Serui Hospital patient visits from September 2023-August 2024.

Based on data on patient visits at Serui Hospital from September 2023 to August 2024, there is a significant downward trend in the number of old patients. In September 2023, there were 512 old patients, but this number decreased to 231 old patients in August 2024, which showed a decrease of 281 patients or around 54.8%. The most significant decrease occurred in April and May 2024, where there were only 65 old patients each, which is a decrease of 87.3% compared to the previous month. On the other hand, new patient visits fluctuated with a peak of 544 new patients in October 2023 and 315 new patients in February 2024. However, this decline in the number of old patients reflects a problem in patient loyalty.

Based on the data, the researcher conducted an initial survey of patients to identify factors that affect patient satisfaction and loyalty, the results showed that the following factors influenced the customer's desire to visit the clinic: quality of service (non-discriminatory and responsive doctors and nurses, accurate diagnosis, friendly handling of patient complaints by medical staff, comfortable waiting and treatment rooms, waiting times), and physical environment (clean and comfortable). With patient satisfaction as a mediating variable, the researcher will use pre-survey data to focus on the impact of service quality, physical environment, and the kindness and attention of medical staff to patient loyalty. Previous studies have found this truth, according to Dam (2021), customer happiness and loyalty are greatly influenced by the way they evaluate the quality of service they receive. Lacap & Alfonso (2022) emphasize the importance of the physical environment of the hospital in shaping patient satisfaction, which has an impact on the intention of the recommendation, with loyalty as a mediator. Woo & Choi (2021) added that the friendliness and attention of medical staff as well as the physical environment play an important role in increasing satisfaction and intention for revisits in Korean public hospitals.

The gap between patients' expectations and their actual experience ultimately determines the patient's satisfaction level (Xesfingi & Voziki, 2016). Subjective evaluation of the entire multidimensional qualities associated with the healthcare experience is necessary to measure the attitudes created by emotions, i.e., satisfaction, in the healthcare setting (Spirdon et al., 2018). This suggests that a positive correlation between patient satisfaction and their tendency to use or return to healthcare is stronger when satisfaction levels are high. Patient satisfaction is positively and significantly influenced by price fairness, trust, and the physical environment, according to research by Swain and Singh (2021). Sefnedi et al., (2020) found that patients are more satisfied when they receive high-quality services.

Service quality has a significant impact on patient loyalty, where the quality of service that patients perceive influences their decision to return and recommend the hospital. Nguyen (2021) found that quality of service significantly affects patient loyalty through satisfaction, with the results of the analysis showing that Quality of service not only increases trust but also loyalty. In addition, a significant relationship was also found between service quality and loyalty at Puspa Husada Hospital (Azzahra & Prapanca, 2023). Similarly, Eris (2022) revealed that perceived quality at Harran University Hospital, Turkey, has a positive impact on loyalty, underscoring the importance of improving service quality to maintain patient loyalty.

In addition to service quality, the physical environment is another variable that contributes significantly to patient loyalty. The physical environment is an important element

in the service business, especially related to the consumer experience. The quality of healthcare facilities, including design, cleanliness, and aesthetics, contributes to the achievement of patient satisfaction and loyalty (Ronaldi et al., 2022). Lacap & Alfonso's (2022) research also shows that the physical layout of hospitals greatly influences patients' tendency to return and recommend the facility to others. Manshur et al. (2022) affirm that physical elements such as facilities and cleanliness are important in shaping patients' perceptions of service quality, influencing satisfaction and loyalty.

Another important component in increasing patient happiness and loyalty is the care and friendliness of the medical team. Woo and Choi (2021) found that both inpatients and outpatients reported higher levels of satisfaction with their healthcare experience when medical professionals showed a compassionate and kind attitude. When the patient is in the hospital, this attitude also directly affects patient loyalty, shown through the intention to revisit. In contrast, in outpatients, kindness and consideration do not directly affect the intention to return, but affect through increased patient satisfaction. The study's findings suggest that patients are more likely to become loyal regulars at healthcare facilities when staff show a friendlier and kinder attitude.

Patient satisfaction acts as a mediating variable between the quality of service, the physical environment, and the friendliness and consideration of medical staff, which in turn affects patient loyalty (as described above). The pre-survey results show that the friendly and attentive quality of service from the medical staff, as well as the clean and comfortable physical environment, greatly influence patient satisfaction. Previous research has also supported these findings, suggesting that improvements in these aspects contribute to patient loyalty. When patients feel satisfied with the service they receive, they become more committed to returning and recommending the slum to others. Therefore, it is important for hospitals to focus on improving the quality of service, creating a comfortable physical environment, and paying attention to the friendliness and attention of medical staff to increase overall patient satisfaction and loyalty.

The following are some research questions obtained from previous discussions: Does service quality have a positive effect on patient satisfaction in patients of the outpatient unit of Serui Hospital?, Does Medical Staff Kindness & consideration have a positive effect on patient satisfaction in patients of the outpatient unit of Serui Hospital?, Does the physical environment have a positive effect on patient satisfaction in patients of the outpatient unit of Serui Hospital?, Does patient satisfaction have a positive effect on patient loyalty in patients of the outpatient unit of Serui Hospital?, Does service quality have a positive effect on patient loyalty in patients of the outpatient unit of Serui Hospital?, Does the physical environment have a positive effect on patient loyalty in patients of the outpatient unit of Serui Hospital?, Does patient satisfaction mediate the relationship between service quality and patient loyalty in patients of the outpatient unit of Serui Hospital?, Does patient satisfaction mediate the relationship between physical environment and patient loyalty in patients in the outpatient unit of Serui Hospital?

Analyzing the effect of service quality on patient satisfaction in patients of the outpatient unit of Serui Hospital. Analyzing the effect of Medical Staff Kindness & Consideration on patient satisfaction in patients of the outpatient unit of Serui Hospital. Analyzing the influence of physical environment on patient satisfaction in patients of the outpatient unit of Serui Hospital. Analyzing the effect of patient satisfaction on patient loyalty in patients of the

outpatient unit of Serui Hospital. Analyzing the effect of service quality on patient loyalty in patients of the outpatient unit of Serui Hospital. Analyzing the influence of physical environment on patient loyalty in patients of the outpatient unit of Serui Hospital. Identify the mediating role of patient satisfaction between service quality and patient loyalty in patients of the outpatient unit of Serui Hospital. Identify the mediating role of patient satisfaction between physical environment and patient loyalty in patients of the outpatient unit of Serui Hospital.

The following are some of the academic and practical benefits that can be obtained from this study: To increase patient satisfaction and loyalty, hospital management can benefit by knowing the results of a study that examines the relationship between service quality, physical environment, and friendliness as well as consideration of medical staff and patient satisfaction as mediating variables and patient loyalty. To provide knowledge, references, insights or new findings specifically related to the analysis of the influence of the influence of Service Quality, Physical Environment and Medical Staff Kindness & consideration on Patient Loyalty with Patient Satisfaction as a mediating variable, and to be a reference for researchers in the future.

METHOD

All patients at Serui Hospital in Yapen Regency formed the population. A non-probability purposive sampling strategy was used, with inclusion criteria of patients aged over 18 who had visited the hospital at least once, and exclusion criteria of first-time visitors, those refusing interviews, or patients with low consciousness. The sample size was determined using the Inverse Square Root method, yielding a minimum of 160 respondents for the main study and 30 for the preliminary study (Kock & Handaya, 2018).

Primary data were collected via an online Google Forms survey using a five-point Likert scale questionnaire (from strongly disagree to strongly agree) to measure the variables. Secondary data were sourced from books, scientific articles, government documents, reports, and other literature.

Data analysis employed Partial Least Squares Structural Equation Modeling (PLS-SEM). The outer model tested validity and reliability using loading factors, AVE, HTMT, Cronbach's Alpha, and Composite Reliability. The inner model assessed relationships between latent variables via VIF, R^2, and T-statistics for significance.

RESULTS AND DISCUSSION

Inferential Statistics

In this study, the researcher used inferential statistics as a tool to determine the attachment between the variables studied which also aimed to obtain conclusions from the population according to the criteria.

1. Measurement Model (Outer Model)

When looking for evidence of the relationship between indicators and latent variables, one can use a measurement model test, which is also known as a conformity test.

1) Convergent Validity Test

There are two techniques to test the validity of the PLS-SEM method, namely convergent validity and discriminant validity. An indicator is considered valid if its loading factor value is equal to or greater than 0.7, and an indicator in a latent variable is considered valid if its Average Variance Extracted (AVE) value is equal to or greater than 0.5. This concept is known

as convergent validity (Hair et al., 2019). The outer loading values of each indicator in the research variables are as follows:

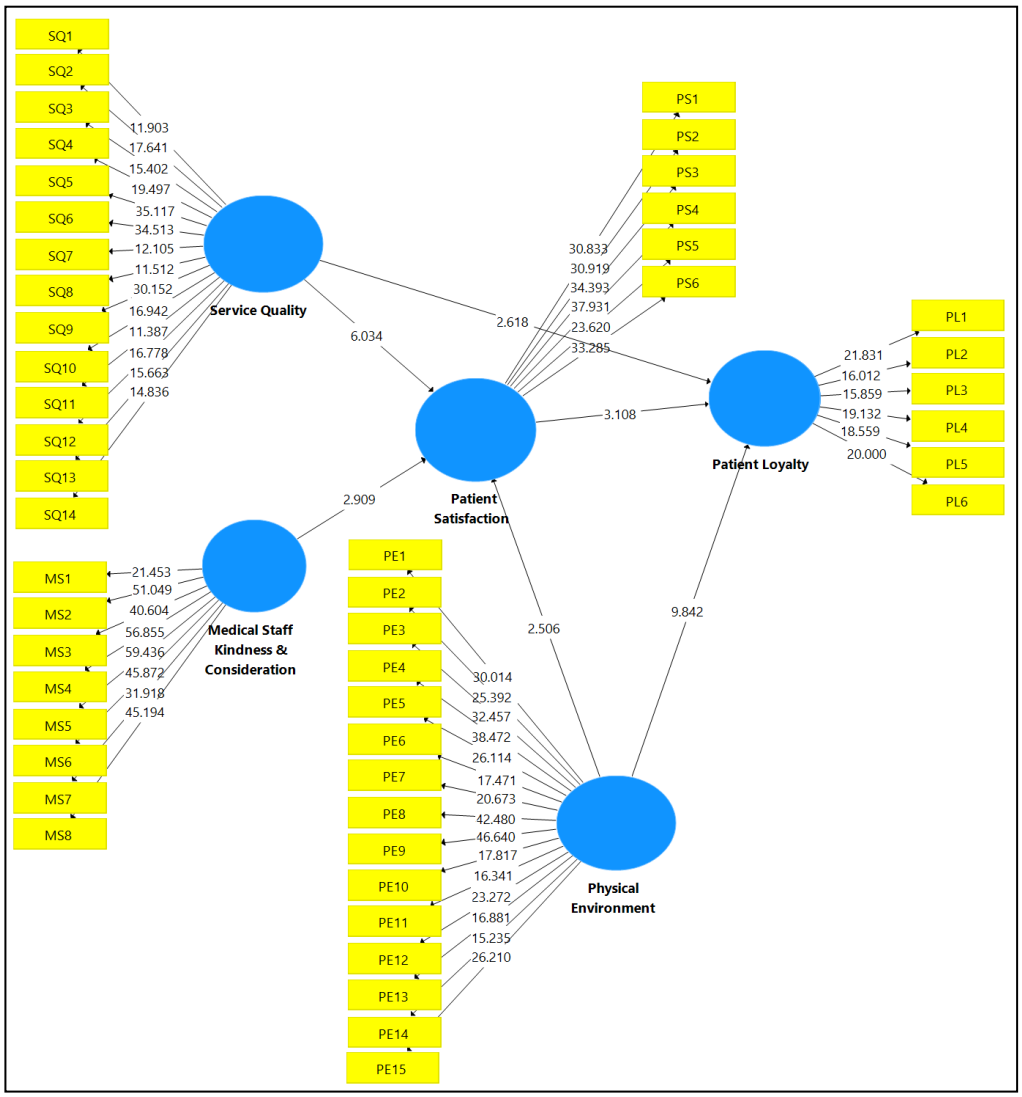

Figure 1. Measurement Model

Source: Data Processing Results, 2024

The following is the outer loading value of each indicator in the research variable.

Tabel 1. Validity Test

Variable	Item	Outer Loading (>0,7)	Average Variance Extracted (AVE) (>0,5)	Result
Service Quality	SQ1	0,76	0,645	Valid
	SQ2	0,79		Valid
	SQ3	0,77		Valid
	SQ4	0,83		Valid
	SQ5	0,89		Valid
	SQ6	0,89		Valid
	SQ7	0,74		Valid
	SQ8	0,74		Valid
	SQ9	0,87		Valid
	SQ10	0,79		Valid
	SQ11	0,76		Valid

Variable	Item	Outer Loading (>0,7)	Average Variance Extracted (AVE) (>0,5)	Result
	SQ12	0,81		Valid
	SQ13	0,80		Valid
	SQ14	0,80		Valid
Physical Environment	PE1	0,89	0,713	Valid
	PE2	0,84		Valid
	PE3	0,87		Valid
	PE4	0,89		Valid
	PE5	0,88		Valid
	PE6	0,82		Valid
	PE7	0,79		Valid
	PE8	0,89		Valid
	PE9	0,92		Valid
	PE10	0,82		Valid
	PE11	0,76		Valid
	PE12	0,85		Valid
	PE13	0,81		Valid
	PE14	0,75		Valid
	PE15	0,87		Valid
Medical Staff Kindness & Consideration	MS1	0,85	0,815	Valid
	MS2	0,90		Valid
	MS3	0,90		Valid
	MS4	0,93		Valid
	MS5	0,94		Valid
	MS6	0,92		Valid
	MS7	0,87		Valid
	MS8	0,92		Valid
Patient Satisfaction	PS1	0,89	0,761	Valid
	PS2	0,88		Valid
	PS3	0,87		Valid
	PS4	0,91		Valid
	PS5	085		Valid
	PS6	0,84		Valid
Patient Loyalty	PL1	0,83	0,643	Valid
	PL2	0,79		Valid
	PL3	0,79		Valid
	PL4	0,79		Valid
	PL5	0,81		Valid
	PL6	0,81		Valid

Source: Data Processing Results, 2024

All the study variables in this model had an AVE value greater than 0.50, which is a necessary criterion. This is supported by the data shown in table 1, which shows that the indicators in each variable have an outer loading value greater than 0.7. This provides sufficient evidence to support the conclusion that the indicators used in this research model are reliable to measure the construct in question.

2) Discriminating Validity Test

This study uses the heterotrait-monotrait ratio (HT/MT Ratio) as a test of the discriminant validity. (Hair et al., 2019; Hair et al., 2020) Compared to the previously used Fornell Larcker

discriminant values, this method is considered more appropriate. The valid discriminant value for a construct is determined in the assessment of this method when the HT/MT ratio is less than 0.9. Indicators in one variable are the most appropriate and specific to measure such constructs (Henseler et al., 2015). Here is the output of the HT/MT ratio value:

Tabel 2. Discriminant Validity Actual

Variable	MS	PL	PS	OR	SQ
Medical Staff Kindness & Consideration					
Patient Loyalty	0,561				
Patient Satisfaction	0,752	0,738			
Physical Environment	0,411	0,812	0,565		
Service Quality	0,711	0,726	0,866	0,556	
HTMT <0.9					

Source : Data Processing Results (2024)

In table 2 As seen above, the HT/MT ratio value of the discriminant validity test is less than 0.9 for all variables. These results show that the research model successfully differentiates all indicators. Since each of these indicators is best suited to measure different constructs, they are able to do so in the context of this research approach, so that all variables pass the validity test.

3) Reliability Testing

A reliability test on PLS-SEM can be performed by checking Cronbach's Alpha and composite reliability (CR).

Table 3. Actual Reliability Tests

Variable	*Cronbach's Alpha* (>0,7)	*Composite Reliability* (>0,7)
Medical Staff Kindness & Consideration	0,967	0,972
Patient Loyalty	0,889	0,915
Patient Satisfaction	0,937	0,950
Physical Environment	0,971	0,974
Variable	*Cronbach's Alpha* (>0,7)	*Composite Reliability* (>0,7)
Service Quality	0,957	0,962

Source : Data Processing (2024)

The table entries for Cronbach's Alpha and Composite Reliability (CR) both exceed 0.7, which suggests that the construct is reliable (Hair et al, 2019).

2. Structural Model (Inner Model)

Once the external model is evaluated during the data analysis stage with PLS-SEM, the next step is to evaluate the structural model or the inner model. Currently, SmartPLS software is used to conduct one-sided hypothesis tests using a re-sampling approach with bootstrapping. The significance and coefficients possessed by SmartPLS can be tested using bootstrapping, a nonparametric process that uses a re-sampling strategy (Memon et al., 2021, Ringle et al., 2015). When evaluating the latent variables (constructs) of a research model, it is common practice to use test data from the inner model. The researcher must check the quality of the research model before presenting the results of the hypothesis test of the inner model. In the inner model, the Variance Inflation Factor (VIF) and R-squared are used as model quality metrics (Hair et al., 2019).

1) Collinearity (VIF)

When two or more independent variables in a model have a strong relationship or relationship, this is called multicollinearity. The accuracy of a model will decrease when multicollinearity is high because the standard error generated by the model is high. The multicollinearity test in PLS-SEM uses the Variance Inflation Factor (VIF) value; Results below 3 show that there is no problem. Multicollinearity problems that are 'critical' or exist in the study model that affect the value of the path coefficient are indicated by a VIF value greater than 5 (Hair et al., 2019. Finding a VIF result between 3 and 5 indicates the suggested value of the multicollinearity test or that the number is still within acceptable limits.

Table 4. Multicollinearity Test

Dependent	***Patient Loyalty***	***Patient Satisfaction***
Independent	**VIF**	**VIF**
Medical Staff Kindness & Consideration		1,896
Patient Satisfaction	3,263	
Physical Environment	1,462	1,406
Service Quality	3,248	2,234

Source : Data processing results (2024)

From the table It can be concluded that the model is free from collinearity problems, because there are no independent variables that have a VIF value of > 5 (Hair et al., 2019).

2) Coefficient of determination (R-Square)

A measure of the extent to which an independent variable can affect a dependent variable is the value of R2, which is often known as the coefficient of determination. Independent variables have a greater influence on dependent variables when R2 values are higher, which can range from 0 to 1 ($0 \leqslant R2 \leqslant 1$). In general, an R2 value above 0.9 indicates that the model may be overfit; nevertheless, R2 values greater than 0.75 indicate a strong match, R2 values greater than 0.50 indicate a moderate match, and R2 values greater than 0.25 indicate a weak match (Hair et al., 2021).

Tabel 5. Coefficient of Determination

	R Square	**Category**
Patient Satisfaction	0,735	Strong
Patient Loyalty	0,687	Keep

Source: Data Processing Results, 2024

The R2 value for the Patient Satisfaction variable is 0.735, as shown in the data presented in table 5 above. These results show that 73.5% variance in patient satisfaction is due to factors such as quality of service, physical environment, and the friendliness and care shown by medical staff. However, Patient Loyalty has an R2 value of 0.687. This value acquisition explains that 68.7% of patients are loyal because they are satisfied with the care provided.

3) Hypothesis Test

If the study model is to be extrapolated to the population level, this significance test must establish the significance of the influence between the variables. SmartPLS is used to process data and run bootstrapping procedures with resampling in these tests. We can apply a one-sided statistical test because we have shown the "positive/negative" direction of the hypothesis' influence. At a significance level of 5% (alpha = 0.05), it is stated that a positive and significant influence exists when the statistical T-value is greater than the T-table value of 1.645 (Memon et al., 2021, Ringle et al, 2015). On the other hand, if the T-statistic is smaller than the T-table

value of 1.645, then there is no significant influence between the two variables (Ringle et al., 2015, Sarstedt et al., 2017). The results of the hypothesis test, as determined by PLS-SEM data processing, are shown in the table below.

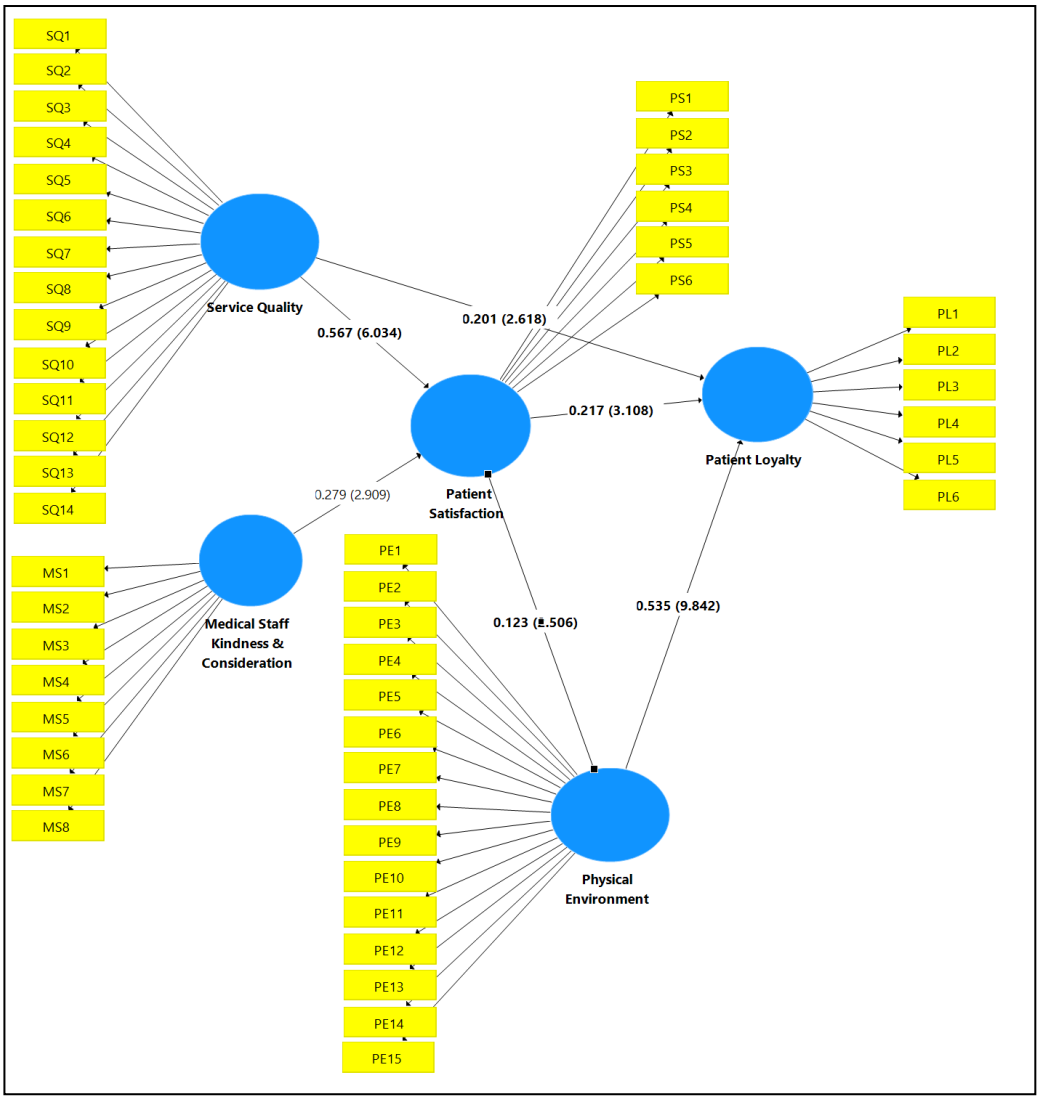

Figure 2. Inner Model

Source: Data Processing Results, 2024

The hypothesis test table is attached.

Table 6. Hypothesis Test Results

Hypothesis	Path Coefficients	T-statistics	P Values	Conclusion
H1 : *Service Quality -> Patient Satisfaction*	0,567	6,034	0,000	Supported
H2 : *Medical Staff Kindness & Consideration -> Patient Satisfaction*	0,279	2,909	0,004	Supported
H3: *Physical Environment -> Patient Satisfaction*	0,123	2,506	0,013	Supported
H4: *Patient Satisfaction -> Patient Loyalty*	0,217	3,108	0,002	Supported
H5 : *Service Quality -> Patient Loyalty*	0,201	2,618	0,009	Supported
H6 : *Physical Environment -> Patient Loyalty*	0,535	9,842	0,000	Supported
H7 : *Service Quality -> Patient Satisfaction -> Patient Loyalty*	0,123	2,818	0,005	Supported
H8 : *Physical Environment -> Patient Satisfaction -> Patient Loyalty*	0,027	2,102	0,036	Supported

Source : Data Processing Results (2024)

H1: Service Quality has a significant positive influence on Patient Satisfaction. The Quality of Service variable has a t-count of 6.034, a p-value of 0.000, and a path coefficient of β +0.567, all of which are already known. The zero (H1) hypothesis that there is no correlation between service quality and patient satisfaction can be rejected due to its large t-statistical value (6,034>1,645). As a result, patient happiness is directly proportional to the quality of service they receive from the patient's hospital that is achieved.

H2: Medical Staff Kindness & Consideration has a significant positive influence on Patient Satisfaction. The T calculation for the Medical Staff Kindness & Consideration variable was 2.909 with a P-value of 0.004 and a Path Coefficient of β +0.279. Since the t-statistic value is 2,909 > 1,645, it can be concluded that H2 is supported, i.e. Medical Staff Kindness & Consideration has a significant positive effect on Patient Satisfaction. The friendly and attentive attitude of the medical staff greatly affects the satisfaction of patients in undergoing treatment in the hospital.

H3: Physical Environment has a significant positive influence on Patient Satisfaction. The T calculation for the Physical Environment variable is 2.506 with a P-value of 0.013 and a Path Coefficient of β +0.123. Because the t-statistic value is 2,506 > 1,645, it can be concluded that H3 is supported, namely the Physical Environment has a significant positive influence on Patient Satisfaction. A comfortable and clean physical environment in the hospital plays an important role in improving patient satisfaction.

H4: Patient Satisfaction has a significant positive influence on Patient Loyalty. The T-count for the Patient Satisfaction variable is 3.108 with a P-value of 0.002 and a Path Coefficient of β +0.217. Because the t-statistic value is 3,108 >1,645, it can be concluded that H4 is supported, namely Patient Satisfaction has a significant positive influence on Patient Loyalty. Patients who are satisfied with the services provided by the hospital are likely to become more loyal and continue to choose the same hospital for future treatment.

H5: Service Quality has a significant positive influence on Patient Loyalty. The T-count for the variable of Service Quality to Patient Loyalty is 2.618 with a P-value of 0.009 and a Path Coefficient of β +0.201. Because the t-statistic value is 2,618 > 1,645, it can be concluded that H5 is supported, namely Service Quality has a significant positive influence on Patient Loyalty. Good service quality not only increases patient satisfaction but also strengthens patient loyalty to the hospital.

H6: Physical Environment has a significant positive influence on Patient Loyalty. The T-calculation for the Physical Environment variable on Patient Loyalty is 9.842 with a P-value of 0.000 and a Path Coefficient of β +0.535. Because the t-statistic value is 9,842 > 1,645, it can be concluded that H6 is supported, i.e. the Physical Environment has a significant positive influence on Patient Loyalty. A good and comfortable physical environment plays a big role in encouraging patient loyalty to continue choosing the same hospital.

H7: Patient Satisfaction mediates the relationship between Service Quality and Patient Loyalty. The T-calculation for the Patient Satisfaction mediation variable between Service Quality and Patient Loyalty is 2.818 with a P-value of 0.005 and a Path Coefficient of β +0.123. Because the t-statistic value is 2,818 > 1,645, it can be concluded that H7 is supported, namely Patient Satisfaction mediates the relationship between Service Quality and Patient Loyalty. Patient satisfaction serves as a mediator that connects service quality with patient loyalty, suggesting that satisfaction is an important factor in increasing loyalty.

H8: Patient Satisfaction mediates the relationship between the Physical Environment and Patient Loyalty. The T-calculation for the Patient Satisfaction mediation variable between the Physical Environment and Patient Loyalty is 2.102 with a P-value of 0.036 and a Path Coefficient of β +0.027. Since the t-statistic value is 2,102 > 1,645, it can be concluded that H8 is supported, i.e. Patient Satisfaction mediates the relationship between Physical Environment and Patient Loyalty. A good physical atmosphere in the hospital not only increases patient satisfaction, but also strengthens their loyalty to the hospital through the feeling of satisfaction they experience during treatment.

The following are the findings of the study, which include examining the mediating role of patient satisfaction in the relationship between service quality, physical environment, and friendliness as well as the consideration of medical staff with patient loyalty among Serui Regional Hospital patients. In addition, relevant findings of previous research are considered to interpret the results of the study.

The Relationship Between Service Quality and Patient Satisfaction

The path coefficient of 0.567 and the t-statistic of 6.034 support the H1 hypothesis, which states that the quality of service has a positive effect on patient satisfaction. This confirms what Parasuraman et al. (1988) predicted in their SERVQUAL theory: that physical evidence, responsiveness, assurance, empathy, and reliability are the five characteristics that make up the quality of service. Patients will be more satisfied with their hospital experience if the care they receive is of high quality and they feel respected. Kondasani and Panda (2015) found the same in their study of patients in five different private hospitals in the Indian city of Rourkela. The study's findings show that the physical environment, reliability, customer-friendly staff, communication, responsiveness, privacy, and safety are all components of service quality that contribute to patient satisfaction. A number of studies, including Brandão & Ribeiro (2023), Wilujeng et al. (2019), Akmal & Sasmita (2020), Indrawati et al. (2021), and Pratama (2020), reinforce the idea that service quality is positive patient satisfaction.

Service quality indicators that are directly related to the speed and efficiency of medical procedures, clear communication, and facility comfort can improve the overall level of patient satisfaction. To further improve satisfaction, hospitals should prioritize staff training regarding responsiveness to patient complaints and improve the quality of communication during treatment. Thus, continuous improvement in the quality of service is expected to increase patient satisfaction which makes them severely strengthen loyalty to the hospital.

The Relationship Between Medical Staff Kindness & Consideration on Patient Satisfaction

This study found that medical staff kindness & consideration had a positive effect on patient satisfaction with a path coefficient of 0.279 and t-statistics of 2,909, which supports the H2 hypothesis. These findings are in line with the research of Woo and Choi (2021) who revealed that the friendliness and attentiveness of medical staff are one of the main factors that affect patient satisfaction. In inpatients, the friendliness and attention of the medical staff, in addition to the doctor's services, are the determining factors for satisfaction. Meanwhile, in outpatients, the friendliness of medical staff also affects patient satisfaction indirectly through the quality of doctors' service practices. These findings confirm the importance of medical

staff's attitude and attention in improving patient satisfaction in hospitals, which ultimately contributes to patients' intention to return to visit. Therefore, the sincere and friendly service of the medical staff is a key component in creating a positive experience and patient loyalty.

Research also confirms that good interaction from administrative staff to medical staff, which includes empathy (friendliness, clarity of information provided, and no gaps between patients) improves patient satisfaction (Zarowitz et al., 2018) (Mappanganro & Hidayat, 2020). When patients feel valued and treated well, they tend to feel more comfortable and satisfied with the services provided. To further improve patient satisfaction, hospitals need to provide intensive training on empathic communication to medical staff, so that they are more responsive to patients' emotional needs. In addition, hospitals can introduce a reward system for medical staff who demonstrate an exceptional empathic and caring attitude, which can further motivate them to continue to provide the best service. This can have a positive impact on overall patient satisfaction.

The Relationship Between Physical Environment and Patient Satisfaction

A t-statistic of 2.506 and a path coefficient of 0.123 showed that the physical environment had a positive impact on patient happiness, thus supporting the H3 hypothesis. This confirms what Woo & Choi (2021) found that in outpatients, the physical environment has been shown to affect patient satisfaction, which will later affect the patient's intention to make a repeat visit to the hospital. Patients will be more satisfied and come back for more visits if the services are of high quality and the facilities are pleasant (Pardede & Saragih. 2020). One of the most important factors in making a good first impression is having a pleasant physical experience when visiting a hospital and improving the patient's perception of the overall quality of service. Therefore, hospitals need to continue to improve the elements of the physical environment, such as ensuring the cleanliness of the treatment room and waiting area, as well as ensuring adequate lighting in each area Statistics t of 2.506 and path coefficient of 0.123 indicate that the physical environment has a positive impact on patient happiness, thus supporting the H3 hypothesis. This confirms what Mehrabian and Russell (1974) found in their theory of environmental psychology: that people's emotions and actions are influenced by their physical environment. Patients tend to be more relaxed, feel better, and recover faster in a clean and pleasant hospital. Utilizing hospital facilities can substantially improve the services provided to visiting patients. Patients will be more satisfied and come back for more visits if the services are of high quality and the facilities are pleasant (Pardede & Saragih. 2020). One of the most important factors in making a good first impression is having a pleasant physical experience while visiting a hospital, the physical environment can affect one's feelings and behavior. A comfortable and clean environment in a hospital can lower patients' stress levels, improve their comfort, and facilitate recovery.

The Relationship Between Patient Satisfaction and Patient Loyalty

Supporting the H4 hypothesis, this study found that patient satisfaction had a positive impact on patient loyalty (path coefficient = 0.217, statistical t = 3.108). When patients feel happy with the care they receive in the hospital, they are more likely to come back and even tell others about their positive experiences to others. When patients feel satisfied with the quality of care, they tend to show loyalty by making regular repeat visits (Tjiptono & Candra,

2017). Homburg et al. (2011) assert that satisfied consumers will be more likely to become loyal, while Spiridon et al. (2018) show that satisfaction can increase return visits and positive recommendations. In the context of healthcare, positive performance in providing services that meet the expectations of loyal patients will show greater support for medical facilities. When patients are satisfied with the services they receive, they are more likely to use them again and promote them to others, which will have a good impact on the reputation of healthcare providers. Studies on hospital services as a whole corroborate this notion, showing that satisfied patients are more likely to remain loyal (Fatima et al., 2018; Asnawi et al., 2019; Liu, et al., 2021).

According to a study conducted in Indonesia, patient satisfaction plays an important role in determining patient loyalty (Ricca & Antonio, 2021). Hospitals that are able to make their patients satisfied by providing excellent care and meeting the needs of each patient will experience increased patient loyalty. patient. To further increase loyalty, hospitals can develop patient loyalty programs, such as discounts or rewards for patients who come in frequently for follow-up control or care. This kind of program can strengthen long-term relationships with patients and increase their loyalty levels.

The Relationship Between Service Quality and Patient Loyalty

The results showed that quality service had a good influence on patient loyalty with a path coefficient of 0.201 and t-statistics of 2.618, which supported the H5 hypothesis. Service quality has a significant impact on patient loyalty, where patients' subjective assessment of the quality of healthcare affects their decision to return. This assessment is subjective, influenced by experience and information received. When patients feel services meet expectations, as expressed by Kotler and Keller (2016), this builds a positive perception that encourages commitment to return. Aaker (2009) emphasizes the importance of understanding the quality dimension that is relevant to the patient. Thus, patient loyalty, which is reflected in the commitment to reuse the service, is strongly influenced by the quality of service they feel, showing a close relationship between perceived quality and patient loyalty. Patient loyalty can be improved by an approach that prioritizes continuous improvement of service quality in relation to responsiveness, empathy, physical facilities, and reliability. In addition, healthcare facilities can increase patient loyalty by needing to conduct regular evaluations of patient satisfaction levels and respond quickly to any complaints or suggestions given by patients. By improving the quality of service, hospitals will be better able to create a positive experience for patients and increase their loyalty levels.

This is supported by several previous studies, including Nguyen (2021), on patients in Vietnamese hospitals, showing that service quality has a major impact on patient loyalty by ensuring their satisfaction. Structural equation modeling research found that the provision of high-quality services increases patient satisfaction and loyalty. The study emphasizes the importance of fostering strong and lasting relationships with patients by emphasizing the need for hospitals to prioritize strategies that improve the quality of service to retain loyal patients. Azzahra & Prapanca, 2023) found that patient loyalty was significantly influenced by the quality of care they received at Puspa Husada Hospital. Eris (2022) conducted a study at Harran University Hospital in Şanlıurfa, Turkey, with 783 patients. Perceived quality has a positive and substantial effect on patient loyalty, according to this study of the health sector.

1. The Relationship Between the Physical Environment and Patient Loyalty

With a path coefficient of 0.535 and a t-statistic of 9.842, the results of this study corroborate the H6 hypothesis which states that the physical environment has a positive impact on patient loyalty. Due to the importance of the physical environment to the service industry, factors such as the cleanliness of the facility, interior and exterior design, and its conditions must be carefully considered, especially considering their direct impact on customers (Ronaldi et al., 2022). In this situation, patient satisfaction is achieved through high-quality healthcare facilities that foster loyalty among patients. This is made possible by factors such as the purpose and nature of the organization, land accessibility and the need for space, aesthetics, adaptability, the surrounding community and environment, and construction and operating costs. The findings of this study were published by Stanley and Sidharta (2023) which stated that facilities have an effect on patient loyalty. Lacap & Alfonso (2022), the results of the study suggest that the physical environment of hospitals significantly and positively affects patient loyalty and intention to recommend hospitals to others. Mansur et al (2022) Research on patients at Datu Pancaitana Hospital, Bone Regency, the results of the study showed that the physical environment, which includes physical elements such as facilities, cleanliness, and hospital appearance, plays an important role in determining how patients assess the quality of care they receive. Patient satisfaction with the physical facilities of the hospital, including cleanliness, lighting, and comfort of the treatment room, affects the likelihood that the patient will use the facility again. Therefore, health facilities must continue to invest in improving the physical environment, paying attention to elements such as lighting, cleanliness, and better spatial planning. By creating a more comfortable and friendly environment, hospitals can increase their patient loyalty.

The relationship between service quality and patient loyalty and patient satisfaction as a mediating variable.

The results of the analysis show that these findings reinforce the H7 hypothesis, which states that patient satisfaction substantially mediates the relationship between service quality and patient loyalty. Quality of service indirectly affects loyalty through satisfaction, as shown by a statistical t-value of 2.818 (higher than 1.645) and a P-value of 0.005. patient. The Expectancy-Disconfirmation Theory (Oliver, 1980) explains that satisfaction occurs when a patient's experience of the quality of service meets or exceeds their expectations. When healthcare services meet or exceed expectations, patients feel satisfied, which motivates them to continue using the same services and recommend them to others. Kotler and Keller (2016) also emphasize that satisfaction is a crucial element in building long-term loyalty, where positive experiences of service generate trust and strong emotional attachment.

Previous research supports these results. Nguyen (2021) shows that Service Quality contributes to increasing Patient Loyalty directly and through Patient Satisfaction as a mediator. This research confirms that quality service builds stronger bonds with patients while increasing satisfaction levels. Liu et al. (2021) and Fatima et al. (2018) emphasize that satisfaction acts as a link between service quality and loyalty, reinforcing the indirect impact of service quality on patient loyalty. These findings underscore the importance of service quality improvement strategies that focus on patient needs to create a satisfying experience,

thereby driving higher loyalty. Thus, patient satisfaction should be prioritized as part of healthcare development efforts to achieve sustainable loyalty.

The relationship between physical environment and patient loyalty and patient satisfaction as a mediating variable.

The results of the analysis showed that Patient Satisfaction significantly mediated the relationship between Physical Environment and Patient Loyalty, supporting the H8 hypothesis. With a t-statistic value of 2.102 (greater than 1.645), a P-value of 0.036, and a Path Coefficient of +0.027, it can be concluded that a good physical environment of the hospital indirectly increases patient loyalty through their satisfaction. Bitner's Servicescape theory (1992) states that elements of the physical environment, such as cleanliness, layout, and facility comfort, play an important role in creating customer experiences that influence their perception of service quality. In this context, patients who are comfortable with the physical atmosphere of the hospital are likely to have positive experiences that increase their satisfaction, which in turn strengthens their loyalty to the hospital.

Previous research supports these findings. Mansur et al. (2022) show that Physical Environment elements such as the cleanliness and aesthetics of the facility have a significant influence on patient satisfaction, which further increases their loyalty. Lacap and Alfonso (2022) also found that a supportive physical environment not only increases satisfaction but also the patient's intention to recommend the hospital to others. Stanley and Sidharta's (2023) research further confirms that a good physical atmosphere creates a lasting impression, which contributes to patient satisfaction and loyalty. As such, hospital management should prioritize improving the quality of physical elements as an important strategy to increase patient satisfaction and encourage long-term loyalty.

CONCLUSION

This study, based on PLS-SEM analysis, confirmed that all hypotheses (H1–H8) were supported at Serui Hospital, demonstrating significant positive effects of service quality, physical environment, and medical staff kindness and consideration on patient satisfaction, which in turn positively influenced patient loyalty; service quality and physical environment also exerted direct effects on loyalty, with satisfaction mediating these relationships—findings consistent with prior research. Key indicators needing improvement included patient-centered service focus (PS5), staff friendliness in handling complaints (SQ4), ventilation and building cleanliness (PE11), and staff empathy (MS6), while strengths like service-expectation alignment (PS6), staff neatness (SQ12), facility comfort (PE5), and administrative speed (MS4) should be maintained. Hospital management is advised to prioritize patient-centered communication, empathy training, and environmental enhancements alongside feedback monitoring to bolster loyalty. For future research, longitudinal studies could track these interventions' long-term impact on loyalty across diverse Indonesian hospitals, incorporating additional variables like digital health tools.

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