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Patient satisfaction as a pathway between service quality and loyalty: Insights from dental care services

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ABSTRACT

This study examines the effect of service quality on patient satisfaction and its implications for loyalty at Lapan Dental Care Clinic in Bandung Regency. A cross-sectional design with consecutive sampling was applied, involving 100 patients. Path analysis was employed to test the causal relationships among the variables. The findings reveal that service quality significantly influences patient satisfaction by 77.89%, with justice contributing the most (18.58%). Patient satisfaction significantly affects loyalty by 79.38% and mediates the relationship between service quality and loyalty, with a contribution of 87.88%. These results highlight the importance of improving service quality, particularly fairness and safety, to enhance patient satisfaction and foster loyalty. This study contributes empirical evidence to the literature on dental healthcare services in regions with limited facilities.

Keywords: service quality; patient satisfaction; loyalty; dental clinic

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RESEARCH & PUBLISHING



1. INTRODUCTION

Health is a basic human need and the foundation for social and economic productivity (Law No. 17 of 2023). In the context of national development, the health sector, along with education and the economy, is a government priority. One of the important indicators of the quality of health services is the ability of health care facilities, including clinics, to provide services that are in accordance with the needs and expectations of patients (Afrioz & Baidillah, 2021). In Indonesia, the challenge in health services is not only related to the availability of facilities but also the quality of services that affect patient satisfaction and loyalty. Basic Health Research data on 2019 show that 56.7% of the population has dental and oral health problems, but only 10.2% access medical services. This low utilization rate confirms the gap between the need for and utilization of services. Dental clinics, especially in areas with limited facilities, such as Bandung Regency, play an important role as primary service providers that are more accessible to the public. However, in the era of competition in health services, clinics are not only required to provide access but also to maintain the quality of services that have an impact on patient satisfaction and loyalty. Patient loyalty plays a strategic role in the sustainability of the healthcare business, as satisfied patients tend to make repeat purchases, provide positive recommendations, and show tolerance to price variations (Kotler & Keller, 2019). Thus, the study of the relationship between service quality, satisfaction, and patient loyalty becomes relevant, especially in dental health services that are specific but essential (Wasito et al., 2024; Setiawan et al., 2022).

Service quality is defined as a comparison between patient expectations and the service experience. The literature confirms that the quality of service includes safety, effectiveness, fairness, timeliness, patient focus, and efficiency (Allen-Duck et al., 2017). Various studies have shown that improving the quality of services has a positive impact on patient satisfaction (Oh, 2021; Karaca & Durna, 2019). In the context of a dental clinic, the quality of service includes not only the technical aspects of the medical field but also personal interaction, the comfort of the facilities, and the accessibility of the service. Previous research indicates that dissatisfaction often arises from long waiting times, the attitudes of medical personnel, and inadequate facilities (Laeliyah & Subekti, 2020; Cooper, 2019). Thus, improving service quality is the main determinant of patient satisfaction. Patient satisfaction is the result of an evaluation of the services received compared to initial expectations (Kotler et al., 2016). Satisfied patients tend to be loyal, characterized by revisiting behavior and positive recommendations (word of mouth). Previous studies have confirmed that satisfaction functions as an important mediator between service quality and loyalty (Ritna, 2016; Sari, 2021). Satisfaction also strengthens patients' trust in service providers, which in turn creates emotional bonds and long-term retention (Burnham et al., 2016; Morgan & Hunt, 2019). In the context of dental clinics, patient satisfaction is critical because the decision to undergo dental treatment tends to be long-term and influenced by previous service experience. Patient loyalty not only impacts the sustainability of clinics but also improves access to public health services. Loyal patients not only return to the service, but also contribute to the clinic's reputation through social recommendations. Research shows that loyalty is formed through a combination of service quality, satisfaction, and emotional factors such as trust (Gaffar, 2019; Ilhamsyah & Mulyani, 2019). Although many studies have highlighted the relationship between service quality, satisfaction, and loyalty, specific studies on dental clinics in areas with limited health facilities, such as Bandung Regency, are limited. This is where the novelty of this research lies—which is to examine how the quality of dental clinic services has implications for patient satisfaction and loyalty in a local context that has limited access but high demand for dental health services (Juanim, 2025).

2. METHODOLOGY

This study uses a cross-sectional design, where data are collected empirically at a time from a subset of the population to obtain respondents' perceptions of the research object. The observation unit is patients who use services at the Lapan Dental Care Clinic. The research population included all patients who visited the Lapan Dental Care Clinic in 2023, totaling 753 people. Given resource limitations, the study used consecutive sampling, i.e. all patients who met the inclusion criteria were included until the

sample count was met. This method is considered one of the most representative forms of non-probability sampling. Based on the calculations, the minimum number of samples required was 88 respondents. However, to reduce the potential for sampling errors and obtain a more normal distribution, this study involved 100 respondents. Data processing is carried out with SPSS software, which is able to manage data and conduct comprehensive statistical analysis. The instrument test is carried out through validity analysis with Pearson Product Moment, where the item is declared valid if the coefficient value ≥ 0.300 . Furthermore, the reliability test uses Cronbach's alpha, with the reliability criterion if the alpha value is ≥ 0.70 . To test the hypothesis, this study used path analysis because this method can assess the causal relationship, both direct and indirect, between research variables. Pathway analysis allows for a deeper understanding of the mediating role and relative contribution of each variable in the research model.

3. RESULT AND DISCUSSION

3.1. Result

The effect of service quality on patient satisfaction at Lapan Dental Care Clinic, Path Analysis statistical test was used in this study to test the hypotheses and sub-hypotheses that have been expressed in the previous chapter. Where X1 = safety, X2 = effectiveness, X3 = fairness, X4 = timeliness, X5 = patient focus, X6 = efficiency, and Y = patient satisfaction. The magnitude of the influence of service quality with the sub-variables of safety, effectiveness, fairness, punctuality, patient focus, and efficiency was determined by analyzing the relationship between the score of the free variable item and the bound variable. To test the hypothesis, the magnitude of the Path coefficient of each variable is calculated.

3.2. The Effect of Safety on Patient Satisfaction

The contribution of safety to patient satisfaction at Lapan Dental Care Clinic is shown in [Table 1](#).

Table 1. Direct and Indirect Influence Safety Over Patient Satisfaction

<i>Interpretation of Path Analysis</i>			
Ket		Influence	%
X1	Direct influence to Y	0.0445	4.45
	Indirect influence through X2 to Y	0.0163	1.63
	Indirect influence through X3 to Y	0.0312	3.12
	Indirect influence through X4 to Y	0.0174	1.74
	Indirect influence through X5 to Y	0.0195	1.95
	Indirect influence through X6 to Y	0.0144	1.44
Sum		0.1433	14.33

Source: SPSS Statistical Processing Results. 25.0

Based on [Table 1](#), it can be seen that the direct influence of the safety sub-variable on patient satisfaction is 4.45%. The largest indirect influence was from X1 through the sub-variable X3 at 3.12%. This indicates that the safety sub-variable is closely related to the justice sub-variable. The total influence of the safety subvariable on patient satisfaction was 14.33%. This shows that the sub-variable of service quality, safety affects patient [Table 1](#).

3.3. Effective Effect on Patient Satisfaction

The contribution of effective influence on patient satisfaction at Lapan Dental Care Clinic is shown in [Table 2](#).

Table 2. Direct and Indirect Effects Effective on Patient Satisfaction

<i>Interpretation of Path Analysis</i>			
Ket		Influence	%
X2	Direct influence to Y	0.0253	2.53
	Indirect influence through X1 to Y	0.0163	1.63
	Indirect influence through X3 to Y	0.0212	2.12
	Indirect influence through X4 to Y	0.0140	1.40
	Indirect influence through X5 to Y	0.0163	1.63
	Indirect influence through X6 to Y	0.0137	1.37
Sum		0.1068	10.68

Source: SPSS Statistical Processing Results. 25.0

Based on [Table 2](#) mentioned above, it can be seen that the direct influence of the effective sub-variable on patient satisfaction is 2.52 The largest indirect influence is from X2 through the sub-variable X3 of 2.12%. This indicates that the effective sub-variable is closely related to justice. The total influence of the effective sub-variables on patient satisfaction was 10.68%. This shows that the sub-variable of effective service quality has an effect on patient satisfaction at Lapan Dental Care Clinic.

3.4. The Effect of Justice on Patient Satisfaction

The contribution of justice to patient satisfaction at the Lapan Dental Care Clinic is shown in [Table 3](#).

Table 3. The Direct and Indirect Influence of Justice on Patient Satisfaction

<i>Interpretation of Path Analysis</i>			
Ket		Influence	%
X3	Direct influence to Y	0.0615	6.15
	Indirect influence through X1 to Y	0.0312	3.12
	Indirect influence through X2 to Y	0.0212	2.12
	Indirect influence through X4 to Y	0.0171	1.71
	Indirect influence through X5 to Y	0.0283	2.83
	Indirect influence through X6 to Y	0.0265	2.65
Sum		0.1858	18.58

Source: SPSS Statistical Processing Results. 25.0

Based on [Table 3](#) mentioned above, it can be seen that the direct influence of the justice sub-variable on patient satisfaction is 6.15%. The largest indirect influence was from X3 through the sub-variable X1 of 3.12%. This indicates that the justice sub-variable is closely related to the safety sub-variable. The total influence of the justice sub-variable on patient satisfaction was 18.56%. This shows that the sub-variable of fairness affects the satisfaction of patients at Lapan Dental Clinic.

3.5. The Effect of Punctuality on Patient Satisfaction

The contribution of punctuality to patient satisfaction at Lapan Dental Clinic can be seen through the [Table 4](#)

Table 4. Direct and Indirect Effects of Time on Patient Satisfaction

<i>Interpretation of Path Analysis</i>			
Ket		Influence	%
X4	Direct influence to Y	0.0219	2.19
	Indirect influence through X1 to Y	0.0174	1.74
	Indirect influence through X2 to Y	0.0140	1.40
	Indirect influence through X3 to Y	0.0171	1.71
	Indirect influence through X5 to Y	0.0124	1.24
	Indirect influence through X6 to Y	0.0129	1.29
Sum		0.0957	9.57

Source: SPSS Statistical Processing Results. 25.0

Based on [Table 4](#) mentioned above, it can be seen that the direct influence of the timeliness sub-variable on patient satisfaction is 2.19%. The largest indirect influence was from X4 through the sub-variable X1, at 1.74%. This indicates that the punctuality sub-variable is closely related to the safety variable. The total influence of the safety subvariable on patient satisfaction was 9.57%. This shows that the sub-variable of service quality, which is punctuality, affects patient satisfaction at Lapan Dental Care Clinic.

3.6. The Effect of Patient Focus on Patient Satisfaction

The contribution of the influence of focus on patients to patient satisfaction at Lapan Dental Clinic can be seen through the [Table 5](#)

Table 5. Direct and Indirect Influence Patient-Focused on Patient Satisfaction

<i>Interpretation of Path Analysis</i>			
Ket		Influence	%
X5	Direct influence to Y	0.0317	3.17
	Indirect influence through X1 to Y	0.0195	1.95
	Indirect influence through X2 to Y	0.0163	1.63
	Indirect influence through X3 to Y	0.0283	2.83
	Indirect influence through X4 to Y	0.0124	1.24
	Indirect influence through X6 to Y	0.0162	1.62
Sum		0.1244	12.44

Source: SPSS Statistical Processing Results. 25.0

Based on [Table 5](#) mentioned above, it can be seen that the direct influence of the patient-focused sub-variable on patient satisfaction is 3.17%. The largest indirect influence was from X5 through the X3 subvariable at 2.83%. This indicates that the patient-focused sub-variable is closely related to the justice sub-variable. The total influence of the patient-focused sub-variable on patient satisfaction was 12.44%. This shows that the sub-variable of service quality that focuses on patients affects patient satisfaction at Lapan Dental Care Clinic.

3.7. Efficient Effect on Patient Satisfaction

The contribution of efficient influence to patient satisfaction at Lapan Dental Care Clinic can be seen through the [Table 6](#)

Table 6. Direct and Indirect Effect on Patient Satisfaction

Interpretation of Path Analysis			
Ket		Influence	%
X6	Direct influence to Y	0.0392	3.92
	Indirect influence through X1 to Y	0.0144	1.44
	Indirect influence through X2 to Y	0.0137	1.37
	Indirect influence through X3 to Y	0.0265	2.65
	Indirect influence through X4 to Y	0.0129	1.29
	Indirect influence through X5 to Y	0.0162	1.62
Sum		0.1229	12.29

Source: SPSS Statistical Processing Results. 25.0

Based on Table 6, it can be seen that the direct influence of the efficiency sub-variable on patient satisfaction is 3.92%. The largest indirect influence was from X6 through the sub-variable X3, at 2.65%. This indicates that the efficient sub-variable is closely related to the justice sub-variable. The total effect of the efficient sub-variable on patient satisfaction was 12.29%. This shows that the sub-variable of efficient service quality has an effect on patient satisfaction at Lapan Dental Care Clinic

3.8. The Effect of Service Quality on Patient Loyalty Through Patient Satisfaction

Based on the calculation of the path analysis, the overall results of the effect of service quality on loyalty through patient satisfaction at Lapan Dental Care Clinic are as follows:

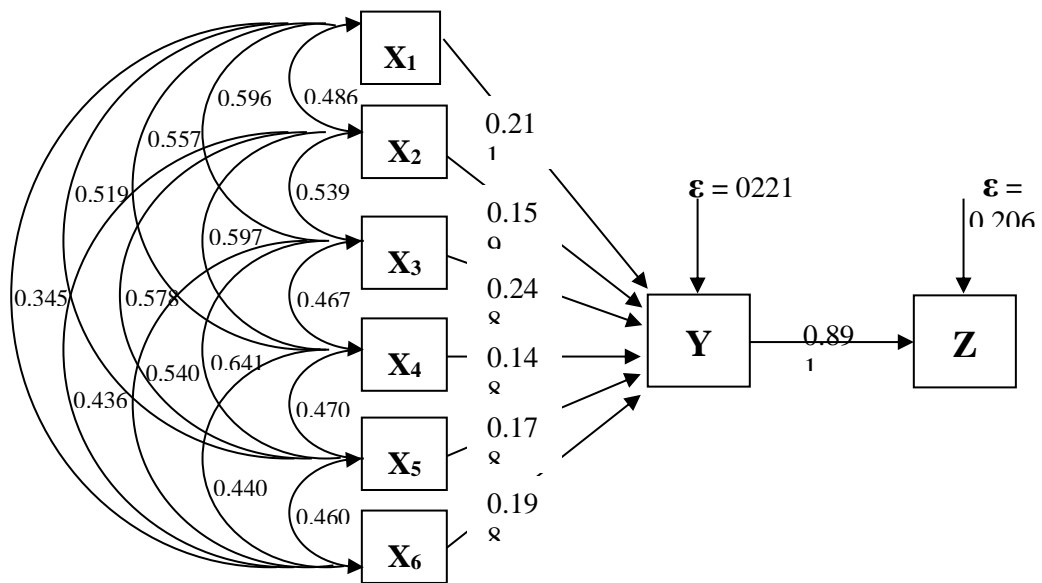


Figure 1. Overall Path Analysis Model

Based on Figure 1, it can be said that each variable, namely service quality with sub-variables of safety, effectiveness, fairness, punctuality, focus on patients, and efficiency, affects patient satisfaction both partially and simultaneously, and patient satisfaction affects patient loyalty at Lapan Dental Care Clinic.

3.2. Discussion

3.2.1. The Effect of Service Quality on Patient Satisfaction

The effect of service quality on patient satisfaction at Lapan Dental Care Clinic showed a positive and significant influence of 77.89%. The remaining was an error (ε) of 0.470 or 22.11%. Error is the

influence of other variables outside the quality of service and this variable is not included in the research variables studied such as price. The six sub-variables above as a whole show a real influence on the value of services. The justice sub-variable contributed the largest to patient satisfaction at Lapan Dental Care Clinic at 18.58% followed by the safety sub-variable contributing 14.33%, the patient-focused sub-variable contributing 12.44%, the efficient sub-variable contributing 12.29%, the effective sub-variable contributing 10.68% and finally the punctuality sub-variable contributing the lowest contribution of 9.57%.

In the context of health, service quality is the provision of services to all patients as well as possible. Service is one of the important aspects for health service providers in carrying out health services to the community. This shows that the quality of service provided by patients at Lapan Dental Care Clinic is felt to be quite able to meet the expectations or needs of their patients. Moreover, the influence of the sub-variables of safety, effectiveness, fairness, punctuality, patient focus, and efficiency have not much different values, which means that all of these dimensions have the same effect on the quality of service. The results of the research support the research that has been conducted by Parasuraman where the dimension of service quality affects the expectations and reality received.

3.2.2. The Effect of Service Quality on Patient Loyalty

Clinics must be able to continuously provide services with a high level of quality, companies are required to continuously increase the value of services. Because basically, the perception of the value of a service is a reflection of how high the quality of the service is in the eyes of customers. Furthermore, Heskett stated that the high customer perception of a service, as expressed above, is the orientation of almost all service providers. All elements in the company must try to convince customers as much as possible, that they get greater *benefits* than the costs or efforts they have expended.

The results of the calculation showed that there was an influence of patient satisfaction on patient loyalty at Lapan Dental Care Clinic by 79.38%. This positive value indicates that the higher the patient satisfaction felt in consuming health services, the more patient loyalty to the clinic will also increase. Similarly, vice versa, the lower the patient satisfaction felt in consuming health services, the lower the patient's loyalty to the clinic.

Service managers need to build roles, perceived values in determining customer satisfaction. The positive emotions that patients give after using the Clinic's health services will show their satisfaction with the Clinic's services. Customer satisfaction affects buyer behavior where satisfied customers tend to be loyal. Consumer satisfaction will have a positive impact on the Clinic. If consumers are satisfied with the Clinic's services, it will create an assessment that the Clinic has been able to provide maximum service to the community.

If consumers are satisfied with the Clinic's services, it will increase their trust and confidence that the Clinic will still provide optimal service to patients, so that consumers will remain loyal to use the services at the Clinic in the future.

Consumer satisfaction contributes greatly to a number of crucial aspects such as the creation of consumer loyalty towards products or services offered by the company, the creation of a good company reputation that is good if consumers are satisfied and reduced price elasticity. In addition, satisfaction is also one of the important indicators for the company's sustainability in the future.

The results of this study are in accordance with what was stated by [Setiawan \(2018\)](#), that the main obstacles to moving instruments in the clinic include: seniority of doctors, patient-doctor interpersonal relationships, friendliness of doctors, the presence of previous medical records, and ease of payment, especially due to cooperation with companies or insurance.

3.3.3. The Effect of Service Quality on Patient Loyalty Through Patient Satisfaction

The results of the calculation show that the effect of service quality on patient loyalty through patient satisfaction is 87.88%. This shows that the indirect influence of service quality on patient loyalty through patient satisfaction is greater than the direct influence. The quality of services provided by companies can create a positive perception from consumers towards the company and produce consumer

satisfaction and loyalty. The quality of service displayed by a company is one of the stimuli that creates consumers to make transactions again with the service company.

Increasing patient satisfaction is needed to maintain the existence of a health service so that it can remain competitive. If the patient is satisfied with the service received, it will provide benefits for the service provider, one of which is that patient satisfaction can cause loyalty.

4. CONCLUSION

The results of this study confirm that the quality of service has a significant influence on patient satisfaction and loyalty at Lapan Dental Care Clinic. The quality of service was proven to affect patient satisfaction by 77.89% with the largest contribution coming from the dimension of fairness (18.58%), followed by safety (14.33%), focus on patients (12.44%), efficiency (12.29%), effectiveness (10.68%), and punctuality (9.57%). Furthermore, service quality also had a direct impact on patient loyalty by 79.38%. Another important finding showed that patient satisfaction mediated the relationship between service quality and patient loyalty with a contribution of 87.88%. Thus, the better the quality of service provided, the higher the satisfaction and loyalty of patients formed. This study focused on only one clinic (Lapan Dental Care), so generalization of results to the broader healthcare context is still limited. In addition, this study only tested six dimensions of service quality without considering other external factors, such as price, brand image, or the influence of digital health services, which have the potential to influence patient loyalty. Future research is suggested to expand the scope of objects in different clinics or hospitals so that the results are more representative. Additional variables such as patient trust, institutional image, service pricing, and adoption of digital technologies (e.g. booking apps or telemedicine) can be considered to provide a more comprehensive understanding of the factors that affect patient satisfaction and loyalty. In addition, a longitudinal approach can also be taken to observe changes in patient loyalty in the long term.

Ethical Approval

Not Applicable

Informed Consent Statement

Not Applicable

Authors' Contributions

W contributed to the research design, data analysis, interpretation of findings, and preparation of the main manuscript. EDP contributed to data collection, literature review, statistical processing, and manuscript revision.

Disclosure statement

The Authors declare that they have no conflict of interest

Data Availability Statement

The data presented in this study are available on request from the corresponding author due to privacy reasons.

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Notes on Contributors

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