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ANALYSIS OF THE EFFECT OF TOTAL QUALITY MANAGEMENT IMPLEMENTATION ON PATIENT LOYALTY, WITH SERVICE QUALITY AND PATIENT SATISFACTION AS MEDIATING VARIABLES

(A Study of Patients at the Dental and Oral Health Clinic of the Poncol Community Health Center in Magetan Regency)

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ABSTRACT

This study aims to analyze the effect of Total Quality Management (TQM) implementation on patient loyalty with service quality and patient satisfaction as mediating variables at the Dental and Oral Polyclinic of Poncol Health Center, Magetan Regency. This research is motivated by the phenomenon of fluctuating patient revisit rates that showed a declining trend throughout 2025, indicating problems in maintaining patient loyalty. This research employed a quantitative approach with a cross-sectional design. The population consisted of all patients who made revisit visits to the Dental and Oral Polyclinic of Poncol Health Center during the period January-December 2025, totaling 441 people. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in 137 respondents. The sampling technique used purposive sampling. Data analysis was performed using Partial Least Square Structural Equation Modeling (PLS-SEM) with SmartPLS version 4.1.6.6 software. The results showed that: (1) TQM has no direct effect on patient loyalty; (2) TQM has a positive and significant effect on service quality; (3) TQM has a positive and significant effect on patient satisfaction; (4) service quality has a positive and significant effect on patient loyalty; (5) patient satisfaction has no significant effect on patient loyalty; (6) service quality is proven to mediate the effect of TQM on patient loyalty; and (7) patient satisfaction is not proven to mediate the effect of TQM on patient loyalty. These findings reinforce TQM theory (Deming, 1986) and SERVQUAL theory (Parasuraman et al., 1988) which emphasize the importance of quality management implementation in improving service quality, which ultimately can shape patient loyalty. Practically, health center management is advised to focus efforts on improving service quality, particularly on aspects of environmental comfort, service speed, and medical staff interaction with patients, as well as ensuring that every system improvement can be applied to real services that are directly felt by patients.

Informasi Artikel

Kata Kunci:

Total Quality Management, Kualitas Layanan, Kepuasan Pasien, Loyalitas Pasien, Puskesmas

ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh penerapan Total Quality Management (TQM) terhadap loyalitas pasien dengan kualitas layanan dan kepuasan pasien sebagai variabel mediasi pada Poli Gigi dan Mulut Puskesmas Poncol Kabupaten Magetan. Penelitian ini dilatarbelakangi oleh fenomena fluktuasi kunjungan ulang pasien yang menunjukkan tren penurunan sepanjang tahun 2025, yang mengindikasikan adanya permasalahan dalam mempertahankan loyalitas pasien. Jenis penelitian yang digunakan adalah penelitian kuantitatif dengan pendekatan cross-sectional. Populasi dalam penelitian ini adalah seluruh pasien yang melakukan kunjungan ulang di Poli Gigi dan Mulut Puskesmas Poncol periode Januari-Desember 2025 yang berjumlah 441 orang. Jumlah sampel ditentukan menggunakan rumus Slovin dengan tingkat kesalahan 5%, sehingga diperoleh sampel sebanyak 137 responden. Teknik pengambilan sampel menggunakan purposive sampling. Analisis data dilakukan menggunakan metode Partial Least Square Structural Equation Modeling (PLS-SEM) dengan bantuan software SmartPLS versi 4.1.6.6. Hasil penelitian menunjukkan bahwa: (1) TQM tidak berpengaruh langsung terhadap loyalitas pasien; (2) TQM berpengaruh positif dan signifikan terhadap kualitas layanan; (3) TQM berpengaruh positif dan signifikan terhadap kepuasan pasien; (4) kualitas layanan berpengaruh positif dan signifikan terhadap loyalitas pasien; (5) kepuasan pasien tidak berpengaruh signifikan terhadap loyalitas pasien; (6) kualitas layanan terbukti memediasi pengaruh TQM terhadap loyalitas pasien; dan (7) kepuasan pasien tidak terbukti memediasi pengaruh TQM terhadap loyalitas pasien. Temuan ini memperkuat teori TQM (Deming, 1986) dan SERVQUAL (Parasuraman et al., 1988) yang menekankan pentingnya penerapan manajemen mutu dalam meningkatkan kualitas layanan, yang pada akhirnya dapat membentuk loyalitas pasien. Secara praktis, manajemen Puskesmas disarankan untuk memfokuskan upaya peningkatan kualitas layanan, khususnya pada aspek kenyamanan lingkungan, kecepatan pelayanan, dan interaksi tenaga medis dengan pasien, serta memastikan bahwa setiap perbaikan sistem dapat diaplikasikan ke dalam pelayanan yang nyata dan dirasakan langsung oleh pasien.

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1. Introduction

The Poncol Community Health Center in Magetan Regency is facing a serious challenge in the form of a downward trend in return visits to the Dental and Oral Health Clinic throughout 2024. The main issues identified include long wait times (service duration ranging from 15 to 60 minutes), limited facilities, and suboptimal outreach health education. These conditions have the potential to lower patients' perception of service quality [9]. To address this, a strategic approach such as Total Quality Management (TQM) which focuses on continuous improvement and customer orientation is needed to create efficient services, reduce waste, and improve service quality. [16]

This study integrates four major grand theories to construct a conceptual model of healthcare services. TQM theory is used to measure process optimization, asset management, and socialization. [11] The SERVQUAL theory serves as the basis for measuring service quality through three relevant dimensions: reliability, tangible evidence, and responsiveness. [12] Furthermore, Expectancy-Disconfirmation Theory underpins the evaluation of patient satisfaction through procedures, speed, and comfort. [13] Meanwhile, Loyalty Theory is used to measure the behavioral and attitudinal dimensions of patients.

In theory, the systematic application of TQM principles will improve processes and enhance the quality of service as perceived by patients. [11] Improvements in service quality based on the SERVQUAL model directly contribute to patient satisfaction when service performance meets or exceeds their expectations. [12] Ultimately, satisfied patients will develop long-term commitment or loyalty. [10] Therefore, this study aims to analyze the effect of TQM implementation on patient loyalty at the Poncol Community Health Center's Dental and Oral Clinic by treating service quality and patient satisfaction as mediating variables.

This situation is exacerbated by the fact that by the end of the year (November and December), the percentage decline actually widened to -9.1% and -15.0%. This negative trend, which continued through the end of the year, indicates that the problems faced are systemic and have the potential to persist into the following year if strategic interventions are not immediately implemented through the comprehensive application of Total Quality Management. This can be seen in the graph of the number of repeat visits by patients to the Poncol Community Health Center's Dental and Oral Clinic, as follows:

Figure 1. Graph Showing the Decline and Increase in Follow-up Visits by Patients at the Poncol Community Health Center's Dental and Oral Health Clinic in 2025
Source: Medical Record Data from the Poncol Community Health Center's Dental Clinic (processed, 2025)

Based on 2025 data, fluctuations in patient return visits at the Dental and Oral Health Clinic of the Poncol Community Health Center reflect structural issues in service quality management, characterized by a consistent decline over eight consecutive months (January–August) as well as a drastic drop following an increase in September. This instability in visit trends from month to month indicates underlying problems in the service system, consistent with the findings of contributing factors in the background section, which are then categorized into several factors causing fluctuations in Table 1.

Table 1. Factors Causing Fluctuations in Patient Return Visits

No	Factor Categories	Main Causes	Contribution
1	Service Time	Long wait times (15–60 minutes per patient)	45%
2	Facilities and Equipment	Insufficient availability of equipment	30%
3	Health Education	Off-site education has not been optimal	15%
4	External Factors	Temporary special programs	10%

Source: Primary and Secondary Data from the Poncol Community Health Center (Data processed, 2026)

Fluctuations in patient return visits to the Dental and Oral Health Clinic at the Poncol Community Health Center are influenced by three main factors: long wait times due to varying service durations (15–60 minutes); limited medical facilities and equipment, which undermine patient trust; and suboptimal outreach health education. A temporary surge of +117.4% in visits in September, followed by a drastic decline of -56.0% in October, demonstrates that short-term promotional programs are

not sustainable. This phenomenon underscores the urgency of implementing comprehensive Total Quality Management (TQM) to standardize services, optimize resources, and establish a stable patient retention system.

Although TQM is theoretically capable of improving service quality and patient satisfaction, there remains a research gap regarding the effectiveness of its implementation in the public primary health care sector, which faces resource constraints, particularly in specific services such as dental clinics that involve repetitive procedures. Most previous studies have focused on the commercial and private sectors, so the dual mediation mechanism of service quality and patient satisfaction in the relationship between TQM and loyalty at community health centers has not yet been empirically tested. Therefore, this study aims to fill this gap through an in-depth analysis of the effect of TQM implementation on patient loyalty at the Poncol Community Health Center, with service quality and patient satisfaction serving as mediating variables.

2. Research Method

The implementation of Total Quality Management (TQM) as a management approach focused on continuous improvement, resource empowerment, and customer orientation [3] is believed to be the primary foundation for improving service quality and patient satisfaction at community health centers. Service quality which encompasses reliability, tangibles, and responsiveness (Parasuraman et al., 1988) along with patient satisfaction, assessed based on a comparison between expectations and service performance [12], is hypothesized to act as a mediating variable in this relationship. Through process standardization and communication efficiency, the implementation of TQM principles is expected not only to have a direct impact but also, indirectly, to build patient loyalty reflected in a commitment to continue using and recommending these services [4] thereby ensuring the sustainability and reputation of primary healthcare institutions.

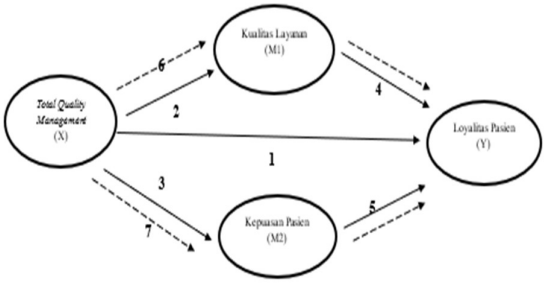

Figure 2. conceptual framework

This study employed a quantitative approach, specifically explanatory research with a cross-sectional design, to examine the causal relationship between variables over a specific time period [8]. The study population consisted of all patients at the Dental and Oral Health Clinic of the Poncol Community Health Center in Magetan Regency. The data used consisted of primary data obtained directly through the distribution of questionnaires to patients to measure perceptions of the variables Total Quality Management (X), service quality (M1), patient satisfaction (M2), and patient loyalty (Y), as well as secondary data in the form of relevant literature and medical records of patient visits at the Poncol Community Health Center.

The study population included all returning patients at the Poncol Community Health Center's Dental and Oral Health Clinic from January to December 2025, totaling 441 individuals [15] Sampling employed a non-probability sampling technique using a purposive sampling approach based on inclusion criteria: patients must be at least 17 years old, willing to participate as respondents, and have made at least one follow-up visit [15]. Subsequently, the collected data were analyzed using Partial Least Squares-based Structural Equation Modeling (SEM-PLS) because this method was deemed capable of testing complex causal relationships both direct and indirect among the latent variables in the research model.

$$n = \frac{N}{1 + N(e)^2}$$

Description:
n = Sample size
N = population size (in this case: 441 people)
e = error rate of 0.05 (5%) Accuracy rate of 95%

Data collection for this study utilized a closed-ended questionnaire for primary data and internal reports as well as the eRM records of the Dental and Oral Health Clinic at the Poncol Community Health Center for secondary data. This study involved four types of variables: Total Quality Management as the independent variable (X), Service Quality (M1) and Patient Satisfaction (M2) as mediating variables, and Patient Loyalty as the dependent variable (Y). The measurement instruments used a 5-point Likert scale, ranging from Strongly Disagree (score 1) to Strongly Agree (score 5) The validity of the instruments was tested using Factor Loadings (> 0.70) and Average Variance Extracted (AVE) (> 0.50), while reliability was measured using Composite Reliability (CR) and Cronbach's Alpha (CA) with a cutoff of > 0.70. [7]

The processing of raw data was carried out through three main processes in Microsoft Excel: checking for completeness (editing), converting responses into numerical values

(coding/scoring), and tabulating and cleaning the data (tabulating/data cleaning). Subsequently, quantitative analysis was conducted using two approaches. First, descriptive statistical analysis was performed by calculating the mean of respondents' answers, which were then grouped into specific categories based on the interval scale range. Second, inferential analysis using the SEM-PLS structural model was applied to test direct and indirect causal relationships and to test the research hypotheses.

3. Results and Discussion

3.1 Results

3.1.1 Description of Research Variables

Before testing the hypotheses, we will analyze the description of each variable. There are four variables to be tested, as follows:

Table 2. Description of Total Quality Management Variables

No	STS		TS		N		S		SS		Rata-rata
	n	%	n	%	n	%	n	%	n	%	
1	2	1,5%	11	8,0%	34	24,8%	87	63,5%	3	2,2%	3,57
2	0	0,0%	6	4,4%	36	26,3%	92	67,2%	3	2,2%	3,67
3	0	0,0%	3	2,2%	45	32,8%	84	61,3%	5	3,6%	3,66
Optimalisasi Proses (X.1)											3,64
4	0	0,0%	2	1,5%	10	7,3%	122	89,1%	3	2,2%	3,92
5	3	2,2%	5	3,6%	31	22,6%	68	49,6%	30	21,9%	3,85
6	1	0,7%	7	5,1%	30	21,9%	69	50,4%	30	21,9%	3,88
Manajemen Aset (X.2)											3.88
7	1	0,7%	4	2,9%	30	21,9%	72	52,6%	30	21,9%	3,92
8	0	0,0%	8	5,8%	32	23,4%	64	46,7%	33	24,1%	3,89
9	3	2,2%	6	4,4%	27	19,7%	72	52,6%	29	21,2%	3,86
Sosialisasi (X3)											3,89
Total Quality Management (X)											3,80

Source: Processed Research Data (2026)

Respondents' perceptions of the implementation of Total Quality Management (TQM) at the Dental and Oral Clinic generally fell into the "good" category, with an overall average score of 3.80, indicating that quality management practices are functioning quite effectively. The Outreach indicator (X3) achieved the highest average score of 3.89 because patients felt that information regarding treatment procedures was very clear and easy to understand. Conversely, the Process Optimization indicator (X1) received the lowest average score of 3.64; although it still falls within the "good" category, this result indicates that service procedures at the dental clinic are not yet fully perceived as standardized, clear, or consistently understood by some respondents, suggesting that this aspect of the service process still needs improvement.

Meanwhile, respondents' perceptions of the Service Quality variable generally fell into the "good" category with an overall average score of 3.69, indicating that the services provided met patients' expectations. The Tangibles indicator (M1.2) achieved an average score of

The highest score was 3.76, with the neat and professional appearance of medical staff being a key factor in building patient trust. Conversely, the Reliability indicator (M1.1) recorded the lowest average score of 3.65; although still categorized as "good," items regarding the accuracy of diagnosis/treatment and the alignment of services with expectations received the lowest scores, indicating that some respondents still felt a discrepancy between the services they received and their expectations, as shown in the table below.

Table 3. Description of the Service Quality Variable

No	STS		TS		N		S		SS		Rata-rata
	n	%	n	%	n	%	n	%	n	%	
1	4	3%	3	2,2%	43	31,4%	84	61,3%	3	2,2%	3,58
2	4	3%	2	1,5%	44	32,1%	84	61,3%	3	2,2%	3,58
3	3	2%	5	3,6%	31	22,6%	75	54,7%	23	16,8%	3,80
Reliability (M1.1)											3,65
4	5	4%	4	3%	31	23%	69	50%	28	20%	3,81
5	1	1%	4	3%	42	31%	81	59%	9	7%	3,68
6	2	1%	7	5%	39	28%	60	44%	29	21%	3,78
Tangibles (M1.2)											3,76
7	5	4%	24	18%	20	15%	46	34%	42	31%	3,70
8	0	0%	6	4%	39	28%	88	64%	4	3%	3,66
9	1	1%	12	9%	40	29%	64	47%	20	15%	3,66
Responsiveness (M1.3)											3,67
Kualitas Layanan (M1)											3,69

Source: Processed Research Data (2026)

The Patient Satisfaction variable (M2) consists of 9 statements. The test results in Table 4 are as follows.

Table 4. Description of the Patient Satisfaction Variable

No	STS		TS		N		S		SS		Rata-rata
	n	%	n	%	n	%	n	%	n	%	
1	1	1%	4	2,9%	34	24,8%	91	66,4%	7	5,1%	3,72
2	0	0%	2	1,5%	44	32,1%	88	64,2%	3	2,2%	3,67
3	1	1%	1	0,7%	47	34,3%	80	58,4%	8	5,8%	3,68
Prosedur Pelayanan (M2.1)											3,69
4	0	0%	7	5%	44	32%	83	61%	3	2%	3,60
5	0	0%	4	3%	46	34%	84	61%	3	2%	3,63
6	0	0%	4	3%	45	33%	82	60%	6	4%	3,66
Kecepatan Pelayanan (M2.2)											3.63
7	3	2%	1	1%	45	33%	83	61%	5	4%	3,63
8	3	2%	10	7%	39	28%	67	49%	18	13%	3,64
9	0	0%	7	5%	51	37%	72	53%	7	5%	3,58
Kenyamanan Lingkungan (M2.3)											3,61
Kepuasan Pasien (M2)											3,64

Source: Processed Research Data (2026)

Overall patient satisfaction was in the "good" category, with an average score of 3.64, indicating that the majority of patients

were satisfied with the services provided. The Service Procedures indicator (M2.1) recorded the highest average score of 3.69, with the ease of following the registration procedures being a key factor driving this satisfaction. Conversely, the Environmental Comfort indicator (M2.3) received the lowest average score of 3.61; although it remains in the "good" category, the item regarding a pleasant waiting room atmosphere received the lowest score, indicating that the physical conditions of the service environment particularly the waiting room still need improvement to provide optimal comfort for patients.

Table 5. Description of the Patient Loyalty Variable (Y)

No	STS		TS		N		S		SS		Rata-rata
	n	%	n	%	n	%	n	%	n	%	
1	0	0%	2	1%	35	26%	55	40%	45	33%	4,04
2	0	0%	4	3%	37	27%	92	67%	4	3%	3,70
3	1	1%	10	7%	37	27%	21	15%	68	50%	4,06
Behavioral Loyalty (Y.1)											3,93
4	1	1%	4	3%	39	28%	57	42%	36	26%	3,90
5	0	0%	5	4%	33	24%	66	48%	33	24%	3,93
6	1	1%	5	4%	42	31%	59	43%	30	22%	3,82
Attitudinal Loyalty (Y.2)											3,88
Loyalitas Pasien (Y)											3,91

Source: Processed Research Data (2026)

The indicator with the highest average score was Behavioral Loyalty (Y.1), with a score of 3.93. This indicates that patient loyalty, as evidenced by direct visits, is already very strong. The statement with the highest score for this indicator was "Do not switch to another dental service," reflecting that patients tend to continue using the same service repeatedly. The indicator with the lowest mean score was the Attitudinal Loyalty indicator (Y.2), with a score of 3.88. Although still in the high category, this score indicates that the aspect of loyalty based on attitude still needs improvement. The statement with the lowest score for this indicator was "Proud to be a patient here," suggesting that patients' emotional attachment to the healthcare facility could still be strengthened.

3.1.2 PLS-SEM Model Analysis

This study uses two criteria to evaluate convergent validity: factor loadings and the Average Variance Extracted (AVE).
Factor Loadings. The results of the outer loading estimation are measured by the correlation between the indicator scores (instruments) and the variables. An indicator is considered valid if it has a value above 0.70. If any indicator does not meet this criterion, it must be discarded, and the test must be repeated. The results of the first stage of convergent validity in this study are as follows:

Table 6. Outer Loading Results of the Convergent Validity Test

Pernyataan	Kualitas Layanan	Kepuasan Pasien	TQM	Loyalitas Pasien
M1.2.1	0,742			
M1.1.1	0,865			
M1.1.2	0,844			
M1.1.3	0,701			
M1.2.2	0,793			
M1.2.3	0,792			
M1.3.1	0,877			
M1.3.2	0,780			
M2.1.1		0,760		
M2.1.2		0,846		
M2.1.3		0,785		
M2.2.1		0,806		
M2.2.2		0,865		
M2.2.3		0,826		
M2.3.1		0,828		
M2.3.2		0,792		
M2.3.3		0,778		
X.1.1			0,769	
X.1.2			0,848	
X.1.3			0,880	
X.2.2			0,725	
X.2.3			0,810	
X.3.1			0,794	
X.3.2			0,808	
X.3.3			0,801	
Y.1.1				0,715
Y.1.2				0,787
Y.1.3				0,898
Y.2.1				0,827
Y.2.2				0,808
Y.2.3				0,892

Source: Processed Research Data (2026)

The results of the second-stage test show that the loading factor values are above 0.7, so all indicators in this study are deemed to have convergent validity.

Table 7. AVE Results of the Convergent Validity Test

Variabel	*Average variance extracted* (AVE)	Keterangan
Kualitas Layanan	0,642	Valid
Kepuasan Pasien	0,657	Valid
TQM	0,654	Valid
Loyalitas Pasien	0,678	Valid

Source: Processed Research Data (2026)

The test results showed that all research variables had AVE values above 0.5. Based on these criteria, all measurement instruments for this study were deemed valid.

Discriminant validity aims to ensure that a latent construct is empirically distinct from other constructs in the research model. A model has good discriminant validity if the indicators of one construct do not show high correlations with those of other constructs. In this study, discriminant validity was tested using the cross-loading approach.

Table 8. Summary of Construct Validity and Reliability

Variabel	*Cronbach's alpha*	*Composite reliability*	Keterangan
Kepuasan Pasien	0,934	0,936	Reliabel
Kualitas Layanan	0,918	0,921	Reliabel
Loyalitas Pasien	0,908	0,912	Reliabel
TQM	0,924	0,928	Reliabel

Source: Processed Research Data (2026)

Based on Table 8, all research variables met the requirements because they had Cronbach's Alpha and Composite Reliability values above 0.70. Thus, all research instruments were deemed valid and reliable for use in subsequent testing phases.

Table 9. Model Fit Test Results

Parameter	*Rule of Thumb*	Nilai Parameter	Ket.
SRMR	Lebih Kecil dari 0,10	0,082	Fit
d-ULs	> 0,05	2.927	Fit
d-G	> 0,05	1,213	Fit
Chi Square	X^2 statistik > X^2 tabel	776,006 ≥ 41,337	Fit
NFI	Mendekati nilai 1	0,795	Fit
GoF	0,1 (GOF kecil), 0,25 (GOF *moderate*), 0,36 (GOF kuat)	0,697	Fit
Q^2 Predictive Relevance	Q^2 > 0: Memiliki *predictive relevance* Q^2 < 0 Kurang memiliki *predictive relevance* 0,02 (Lemah) 0,15 (*Moderate*) 0,35 (Kuat)	Q^2 Kepuasan pasien 0,727 > 0 Q^2 Kualitas Layanan 0,709 > 0 Q^2 Loyalitas Pasien 0,522 > 0	Fit

Source: Processed Research Data (2026)

Model fit evaluation shows that this model is accurate and has relevant predictive capability, as evidenced by an SRMR value of 0.082 (< 0.10), which indicates a good fit, as well as d-ULS (2.927) and d-G (1.213) values that show the covariance matrix differences are still within tolerance limits. The model's significance is reinforced by a Chi-Square value of 776.006 (greater than the critical X^2 value of 41.337), supported by an NFI value of 0.795, which is close to ideal, indicating that the model is sufficiently good and acceptable for describing the data. Furthermore, the GoF value of 0.697 is well above the critical threshold (0.36), indicating that the model's overall strength is very high, as well as the Q2 predictive relevance values for the variables Patient Satisfaction (0.727), Service Quality (0.709), and Patient Loyalty (0.522) demonstrate that the model is capable of predicting latent variables in a relevant manner based on their structural relationships.

Table 10. Results of the Coefficient of Determination (R^2) Test

Var. Dependen	*R-square*
Kepuasan Pasien	0.735
Kualitas Layanan	0.716
Loyalitas Pasien	0.700

Source: Processed Research Data (2026)

The results of the coefficient of determination test in Table 10 show an R-squared value of 0.735 for the Patient Satisfaction variable, 0.716 for the Service Quality variable, and 0.700 for the Patient Loyalty variable. This indicates that the research model is able to explain 73.5% of the variation in Patient Satisfaction, 71.6% of the variation in Service Quality, and 70% of the variation in Patient Loyalty, while the remainder is influenced by other factors outside the scope of this research model.

3.1.3 Hypothesis Testing

This study used a two-tailed test with a significance level of 5%. Based on these criteria, a relationship between variables is considered significant if it has a P-value < 0.05 or a T-statistic > 1.96.

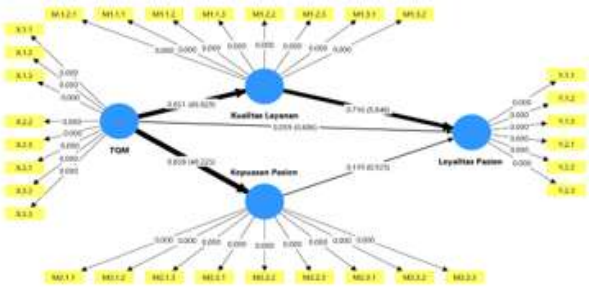

Figure 3. Output PLS-SEM
Source: SmartPLS4. Processed by the researcher (2026)

Table 11. Results of Direct Hypothesis Testing

Koefisien Jalur	Original sample (O)	Standard deviation (STDEV)	T statistics	P values	Keterangan
Kepuasan Pasien -> Loyalitas Pasien	0,221	0,126	1,747	0,081	Tidak Terbukti
Kualitas Layanan -> Loyalitas Pasien	0,593	0,113	5,272	0.000	Terbukti
TQM -> Kepuasan Pasien	0,858	0,018	48,363	0.000	Terbukti
TQM -> Kualitas Layanan	0,848	0,018	47,248	0.000	Terbukti
TQM -> Loyalitas Pasien	0,039	0.099	0,397	0,691	Tidak Terbukti

Source: SmartPLS4. Processed by the researcher (2026)

The results of the Indirect Effect Test are shown in Table 12 below:

Table 12. Results of the Indirect Hypothesis Test

Koefisien Jalur	*Original sample*	*Standard deviation*	*T statistics*	*P values*	Keterangan
TQM -> Kualitas Layanan -> Loyalitas Pasien	0,503	0,097	5.201	0.000	Terbukti
TQM -> Kepuasan Pasien -> Loyalitas Pasien	0,189	0,11	1.727	0.084	Tidak Terbukti

Source: SmartPLS4. Processed by the researcher (2026)

3.2 Discussion

The discussion of the research results will elaborate on how the analysis of the hypothesis testing addresses the research objectives, relating them to the underlying theory and to the results of previous studies.

3.2.1 The Effect of Total Quality Management on Patient Loyalty

The results of this study indicate that Total Quality Management (TQM) has no direct influence on patient loyalty at the Dental and Oral Clinic of the Poncol Community Health Center (UPTD Puskesmas). This is because TQM is an internal managerial approach focused on continuous improvement and process efficiency [3], so its impact is not immediately felt by patients as service users. This finding differs from previous studies that reported a direct effect of TQM on loyalty [1], [2], [6]. This discrepancy stems from the characteristics of patients at primary-level healthcare facilities, who are predominantly women of working age with a secondary or higher level of education; they are far more oriented toward their actual experience during care such as facility comfort, speed, and medical interactions than toward organizational management aspects.

3.2.2 The Effect of Total Quality Management on Service Quality

The results of the study show that Total Quality Management (TQM) has a positive and significant effect on service quality at the Dental and Oral Health Clinic of the Poncol Community Health Center (UPTD Puskesmas), indicating that the application of quality management principles can improve the quality of service as perceived by patients through the aspects of reliability, tangibles, and responsiveness (Parasuraman et al., 1988). Through process standardization, improved competence of healthcare personnel, and continuous system improvements, TQM has been successfully implemented into tangible service delivery that has been positively received by a patient population predominantly consisting of women of productive age with middle-to-high levels of education. These findings reinforce the evidence that TQM has practical implications for boosting the quality of health care services, in line with previous research affirming that good quality management in the public and health sectors has proven effective in optimizing service standards and the patient experience for the public. [14]

3.2.3 The Impact of Total Quality Management on Patient Satisfaction

The results of this study demonstrate that Total Quality Management (TQM) has a positive effect on patient satisfaction at the Dental and Oral Health Clinic of the Poncol Community Health Center (UPTD Puskesmas), indicating that the implementation of good quality management can enhance the fulfillment of patients' expectations regarding the performance of the services they receive [16]. Through a structured service system, clear procedures, and continuous improvement, TQM creates a comfortable and efficient treatment experience. TQM's greatest contribution to boosting this satisfaction is reflected in the indicator of treatment procedure information, which was rated as very easy to understand, thereby fostering patients' confidence and trust. These findings are consistent with previous research confirming that the successful implementation of quality management in the public and healthcare sectors not only optimizes an organization's internal systems but also tangibly enhances positive perceptions and satisfaction among service users. [17] [2]

3.2.4 The Effect of Service Quality on Patient Loyalty

The results of the study show that service quality has a positive effect on patient loyalty; the better the quality of service provided, the higher the patients' commitment to remain loyal to that service and not switch to another healthcare facility. Positive experiences during the treatment process are a key factor in building long-term trust, supported in part by tangible aspects such as the neat and professional appearance of medical staff, which successfully creates a good first impression. Patient loyalty in this study was relatively high, as indicated by a strong behavioral aspect: the desire to continue using the same service. These findings are consistent with a study by [18], which confirms that in the healthcare sector, service quality is a key determinant that not only satisfies patients but also effectively fosters deep engagement and loyalty toward service providers.

3.2.5 The Effect of Patient Satisfaction on Patient Loyalty

The results of the study show that patient satisfaction does not affect patient loyalty at the Dental and Oral Clinic of the Poncol Community Health Center (UPTD Puskesmas), indicating that the level of satisfaction experienced is not yet strong enough to foster long-term commitment [5]. Although patients were satisfied with the ease of the registration process (the highest-scoring indicator), loyalty did not develop due to low emotional attachment and a lack of pride among patients, as evidenced by

the lowest score on the item "Proud to be a patient here" as well as discomfort with physical aspects of the environment, such as the atmosphere in the waiting room, which less satisfying. These findings are inconsistent with study [1], which states that satisfaction has a significant effect on loyalty, thereby confirming that, in the context of public health care, satisfaction with specific procedural aspects is not the sole factor capable of ensuring overall patient loyalty and engagement.

3.2.6 The Effect of Total Quality Management (TQM) on Patient Loyalty through Service Quality

The research results demonstrate that service quality acts as a full mediator, bridging the relationship between Total Quality Management (TQM) and patient loyalty; specifically, the implementation of TQM must first manifest as tangible improvements in service quality in order to foster loyalty. Although the influence of TQM on service quality is very strong, its effect diminishes when it comes to fostering loyalty because loyalty is a complex domain influenced by respondent characteristics (predominantly women of working age with middle-to-high levels of education) and numerous external factors. Service quality remains the primary link between the two variables, consistent with Study [14], which identifies service quality as an effective mediating mechanism. This is further supported by data on patient visit frequency, which indicates the presence of behavioral loyalty through repeat visits over the past year; however, this retention is currently limited to the fulfillment of functional service needs and does not yet fully reflect a deep emotional attachment to the institution.

3.2.7 The Effect of Total Quality Management (TQM) on Patient Loyalty through Patient Satisfaction

The results of the study indicate that Total Quality Management (TQM) does not influence patient loyalty through patient satisfaction, suggesting that satisfaction has not yet served as a mediating variable in this relationship. Although the implementation of TQM has proven effective in improving patient satisfaction regarding procedural aspects such as administrative convenience, the resulting satisfaction remains functional and physical in nature and has not yet developed into long-term commitment or a sense of pride. This finding is inconsistent with study [17], which states that patient satisfaction acts as a mediator between TQM and loyalty [2]. This discrepancy in results underscores that, in primary-level healthcare facilities, satisfaction with the efficiency of internal systems alone has not yet become a sufficiently strong primary mechanism to foster sustained emotional attachment and patient loyalty.

4. Conclusion

Based on the analysis results, this study concludes that Total Quality Management (TQM) has no direct effect on patient loyalty, nor does it have an indirect effect through patient satisfaction at the Dental and Oral Health Clinic of the Poncol Community Health Center (UPTD Puskesmas). However, TQM was found to have a positive and significant effect on improving service quality and patient satisfaction. The primary factor that effectively builds patient loyalty is service quality, which also acts as a full mediator for TQM. Conversely, patient satisfaction was found to have no effect on loyalty and failed to function as a mediator; the satisfaction felt by patients is limited to functional and procedural aspects and is not yet strong enough to foster emotional attachment or long-term commitment.

In practical terms, the Poncol Community Health Center (UPTD Puskesmas Poncol) is advised to transform its TQM system into tangible, patient-centered care; prioritize physical renovations to improve the comfort of waiting areas; and encourage medical staff to strengthen interpersonal communication to build deeper emotional bonds. Theoretically, future research is recommended to expand the research model by adding moderating variables or other independent variables such as trust, institutional image, and perceived value. In addition, the use of different settings, such as hospitals or private clinics, as well as the application of a longitudinal approach, is highly recommended to capture the dynamics of changes in patient loyalty more comprehensively over a specific period of time.

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