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The Effect of Waiting Time and Administrative Efficiency on Patient Satisfaction in the Dental Clinic Using the SERVQUAL Model as a Mediator

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Abstract

Using the SERVQUAL paradigm, this study intends to examine how waiting times and administrative effectiveness affect patient satisfaction in Jakartan dental clinics. Patients ≥18 years old who had received care at one of five preselected dental clinics throughout the research period were given an online survey as part of the study's quantitative methodology. All patients who were satisfied the inclusion requirements were included using purposive sampling. To guarantee the stability of the PLS-SEM model, a minimum sample size of 420 respondents was determined by multiplying the number of indicators by 10. The findings show that patient satisfaction and SERVQUAL are positively impacted by waiting time. While SERVQUAL is positively impacted by administrative efficiency, patient satisfaction is not directly impacted. Patient satisfaction is positively impacted by SERVQUAL. Additionally, SERVQUAL entirely mediates the association between administrative efficiency and patient satisfaction and somewhat mediates the association between waiting time and patient satisfaction.

Keywords: *Administrative Efficiency, Patient Satisfaction,* SERVQUAL, *Waiting Time.*

INTRODUCTION

Modern healthcare performance is increasingly shaped by a facility's ability to manage operational processes efficiently while sustaining high-quality patient–provider interactions. This is particularly important in dental clinics, given the personalized, repetitive nature of their services and the heavily patient-experience-influenced touchpoints at every visit. (Aldossary et al., 2023). In dense urban areas like Jakarta, patients often have multiple dental clinic options, so patient satisfaction is no longer solely determined by clinical quality, but also by the quality of the operational experience (Shen et al., 2025). The two operational factors most frequently cited as sources of patient complaints are waiting times and administrative efficiency, particularly in services that combine

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registration, rescheduling, payment, and patient communication (Zhang et al., 2023; Morales et al., 2024).

Research on the relationship between waiting time, administrative efficiency, and patient satisfaction in healthcare services has been extensively conducted. For instance, Aldossary et al. (2023) found that operational factors have a significant influence on patients' evaluations of dental services. Similarly, Shen et al. (2025) demonstrated that patients' visit experiences are influenced by the duration of service processes and perceptions of service flow efficiency. However, most previous studies have focused on hospitals or general medical clinics. Consequently, dental clinic services which are characterized by distinct service workflows, greater variability in treatment duration, and higher intensity of patient–provider interaction remain underrepresented in the existing literature.

Perceptions of overall service quality as well as operational factors influence patient satisfaction. Five fundamental elements make up the SERVQUAL model: tangibles, assurance, responsiveness, empathy, and dependability. A thorough framework for assessing patients' opinions of the quality of services is offered by SERVQUAL (Parasuraman et al., 1988). A more comprehensive evaluation of perceived service quality is made possible by this method.

Despite the large body of research on patient satisfaction, existing studies rarely combine waiting time, administrative efficiency, and SERVQUAL into a single explanatory framework. Most prior studies treat SERVQUAL as the sole predictor of patient satisfaction, thereby overlooking how operational processes such as waiting time and administrative efficiency actively shape patients' quality perceptions. (Zhang et al., 2023). Recognizing this gap, the present study aims to integrate these constructs within a mediated SERVQUAL framework, demonstrating how service operations and experiential quality interact to influence satisfaction. Such an approach not only advances the theoretical linkage between operations and experiential quality but also offers actionable insights for clinic managers seeking to optimize patient-centered service delivery.

LITERATURE REVIEW

The literature consistently emphasizes that waiting time and administrative efficiency are among the healthcare service factors most frequently associated with patient satisfaction, particularly in appointment-based medical facilities such as dental clinics. In the context of dental services, waiting time serves as a highly sensitive indicator of service quality, as patients typically present with specific treatment needs and often experience physical discomfort. Previous studies indicate that longer waiting times increase negative perceptions of service quality, reduce trust in service providers, and directly affect patient retention. Meanwhile, administrative efficiency, which encompasses the clarity of registration procedures, the speed of data verification, scheduling accuracy, and the reliability of record keeping,

constitutes a fundamental element in creating a seamless and low-friction patient experience. The literature suggests that inefficient administrative procedures may indirectly prolong waiting times and generate patient dissatisfaction even before clinical care begins.

Both factors have been assessed in earlier research using models of service quality such as SERVQUAL, which emphasizes five aspects: tangibles, assurance, responsiveness, empathy, and dependability. Because SERVQUAL can capture the discrepancy between patients' expectations and perceptions of service quality, it is frequently used. Because both responsiveness and dependability are directly tied to waiting times and administrative effectiveness, they are especially crucial in the setting of dental clinics. Quantitative studies conducted in outpatient clinics have shown that improvements in administrative efficiency, for instance, through the digitalization of registration systems, have a significant impact on reducing waiting times and enhancing overall SERVQUAL scores. Accordingly, the literature underscores that both variables play a strategic role in determining patient satisfaction, and their integration within a single research model provides an important theoretical contribution to the development of service quality in dental clinics.

Waiting time is a critical factor in shaping patients' perceptions of service quality. Prolonged waiting times are often perceived as indicators of low responsiveness and service inefficiency, which in turn reduce patients' evaluations across various SERVQUAL dimensions. The literature suggests that waiting experiences significantly influence overall perceptions of service quality (Parasuraman et al., 1988; Thompson et al., 1996). Therefore, waiting time is expected to have a significant effect on patients' assessments of service quality as reflected in the SERVQUAL dimensions.

H_1: Waiting time has an effect on SERVQUAL.

Administrative efficiency reflects the smoothness and accuracy of service procedures, ranging from patient registration to the clarity of information received by patients. Fast, accurate, and well-organized administrative processes play an important role in shaping positive perceptions of SERVQUAL dimensions, particularly reliability, responsiveness, assurance, and empathy. A streamlined administrative flow enables patients to perceive services as more professional, comfortable, and free of unnecessary obstacles, thereby increasing trust in healthcare facilities. Conversely, inefficient administrative procedures may prolong waiting times and reduce perceptions of service reliability and competence (Andaleeb, 2001; Osborne and Brown, 2013). In addition, administrative efficiency allows staff to provide more personalized attention to patients, thereby strengthening the empathy dimension. Therefore, administrative efficiency is expected to have an effect on service quality within the SERVQUAL framework.

H_2: Administrative Efficiency has an effect on SERVQUAL.

The SERVQUAL model, which is frequently used to assess the effectiveness of healthcare services, defines service quality based on five

fundamental dimensions: assurance, responsiveness, empathy, tangibles, and dependability. Patients are far more satisfied when they believe that services match or exceed their expectations in all of these areas. Clinical results are only one aspect of service quality; other aspects include the general service experience, which includes the attitudes of medical staff, the comfort of the facility, and the clarity of the information given. Research on service management continuously shows that one of the main factors influencing patient satisfaction is service quality (Zeithaml, Berry, and Parasuraman, 1996). consequently, it is anticipated that greater levels of patient satisfaction will be linked to higher perceived SERVQUAL ratings.

H_3: SERVQUAL has an effect on patient satisfaction.

Waiting duration directly influences patients' perceptions of service flow and the overall quality of their experience during visits to healthcare facilities. Prolonged waiting times are often perceived as a lack of system efficiency, leading to frustration, discomfort, and the perception that services are insufficiently responsive to patients' needs, which ultimately reduces patient satisfaction (Safitri et al., 2024; Yuliati, 2022). In contrast, shorter waiting times indicate effective coordination and a stronger emphasis on patient comfort. Numerous studies indicate that waiting time is a significant determinant of patient satisfaction, particularly in outpatient services (Nasyicha, 2023). Therefore, longer waiting times are associated with lower levels of patient satisfaction.

H_4: Waiting time has an effect on patient satisfaction.

Administrative efficiency plays a crucial role in shaping patients' initial experiences and directly influences satisfaction levels. Fast, clear, and error-minimized administrative processes make patients feel valued and create a professional impression of the services provided (Marpaung & Chalidyanto, 2025). Conversely, slow or overly complex administrative systems may generate dissatisfaction even when the quality of medical care is high. The healthcare service literature indicates that administrative aspects are key indicators of patient satisfaction in outpatient settings (Rahma, Lutfiah, 2025). Accordingly, higher levels of administrative efficiency are expected to be associated with higher patient satisfaction.

H_5: Administrative efficiency has an effect on patient satisfaction.

The effect of waiting time on patient satisfaction is not solely direct but is also mediated by perceptions of service quality. Prolonged waiting times lead patients to evaluate SERVQUAL dimensions, such as responsiveness and tangibles, more critically, thereby reducing perceived service quality (Parasuraman et al., 1985; Dwijayanti, 2024). This decline in perceived service quality subsequently results in lower levels of patient satisfaction (Tairas et al., 2024). This mechanism indicates that waiting experiences shape perceptions of service quality, which then become a primary determinant of patient satisfaction. Accordingly, SERVQUAL functions as a significant mediator in the relationship between waiting time and patient satisfaction.

H_6: SERVQUAL mediates the effect of waiting time on patient satisfaction.

Administrative efficiency can enhance patient satisfaction both directly and indirectly through patients' perceptions of service quality. When administrative processes operate smoothly, patients tend to evaluate the dimensions of reliability, assurance, and responsiveness more positively (Parasuraman et al., 1985; Arief et al., 2025). This improved perception of service quality subsequently contributes to higher levels of patient satisfaction. Thus, SERVQUAL serves as a mediating mechanism that explains how administrative efficiency influences patient satisfaction. Well organized administrative procedures signal effective management and attentiveness to patient comfort, thereby reinforcing positive perceptions of service quality (Tairas et al., 2024). Therefore, administrative efficiency is expected to affect patient satisfaction through improvements in perceived service quality as captured by the SERVQUAL dimensions.

H7: SERVQUAL mediates the effect of administrative efficiency on patient satisfaction.

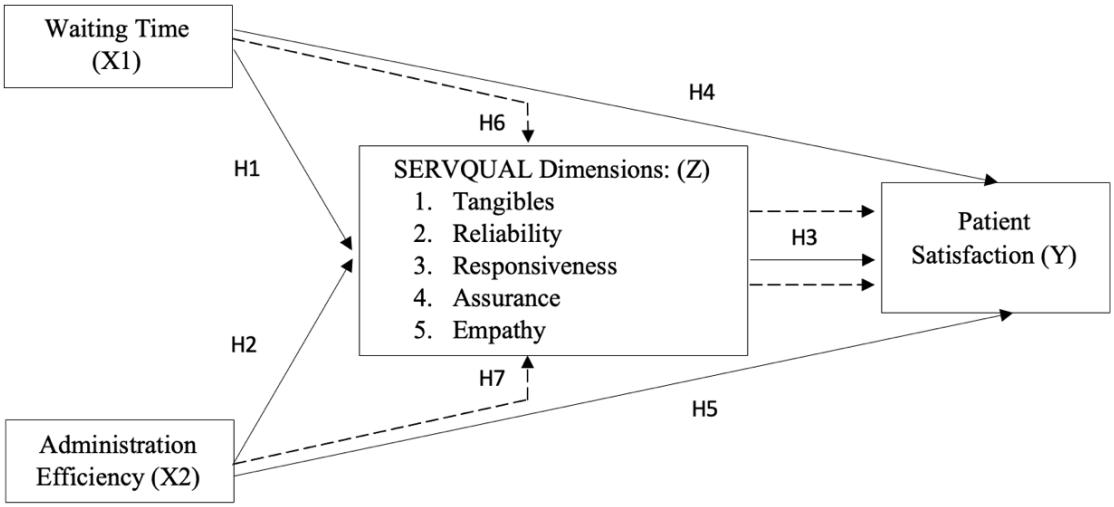

Figure 1. Conceptual Framework

METHODS

The study instrument examined three primary factors: waiting time and administrative efficiency as independent variables; SERVQUAL, which features tangibles, dependability, responsiveness, assurance, and empathy as the mediating variable; and patient satisfaction as the dependent variable. The SERVQUAL model (Parasuraman et al., 1988), the concept of healthcare quality (Andaleeb, 2001), and frameworks related to service administration and patient management in healthcare facilities (Zeithaml et al., 2018; Osborne and Brown, 2013) were among the validated and adapted measurement tools to create the instrument, all constructed using a five-point Likert scale. Expert-based content validity evaluation was used to evaluate the tools, which were adapted for the dental clinic service environment.

All patients who got care at five Jakartan dental clinics during the research period made up the study's population. Due to varying patient visit numbers and the lack of a consistent population database, no set population size was given. To guarantee that respondents and the goals

of the study were in agreement, inclusion criteria were developed. Patients who were 18 years of age or older, had at least one dental procedure during the data collecting period, and were able to understand and complete the questionnaire were eligible to participate. Patients who chose not to participate in the study or who had health issues that would affect their capacity to give accurate answers were not included.

All patients who satisfied the inclusion criteria throughout the data collection period were included as respondents using the whole sample sampling technique. Despite the undetermined population size, Hair et al. (2019) determined the minimum required sample size by multiplying the number of indicators (42 in total) by 10, which yielded a minimum of 420 respondents. The use of a large sample size under a total sampling approach was intended to ensure that variations in patient characteristics were adequately represented and reflected actual service conditions. This approach enhances the stability, accuracy, and statistical power of the PLS SEM model estimation. Accordingly, the sampling strategy ensured that the collected data were comprehensive, representative, and appropriate for structural analysis involving multiple constructs and mediation pathways.

A standardized questionnaire with a five-point Likert scale was used to gather data. Waiting time, administrative effectiveness, the five SERVQUAL characteristics (tangibles, reliability, responsiveness, assurance, and empathy), and patient happiness were all metrics that represented the research constructs in the questionnaire. In order to suit respondents' availability and the operational circumstances of the five dental clinics in Jakarta, data collecting was carried out online.

Prior to distribution, the questionnaire underwent content validity assessment by two experts in healthcare service management to ensure that each item was conceptually appropriate and relevant to the dental clinic service context. Respondents were provided with an informed consent form as a requirement for voluntary participation, which explained the study objectives, data confidentiality, and the respondents' right to withdraw at any time. These procedures were implemented to ensure research ethics in accordance with STROBE guidelines and ethical standards applicable to healthcare service settings.

Using SmartPLS 4 software, partial least squares structural equation modeling (PLS) was used to analyze the data. "The efficacy of this method on models with mediating relationships, many domains, and ordinal datalike replies on a five-point Likert scale led to its selection. In the first phase, the measurement model was assessed to guarantee construct validity and reliability. Construct reliability, average variance, composite reliability values greater than 0.70, factor loadings greater than 0.70, and convergent validity using extracted values greater than 0.50 were all evaluated using Cronbach's alpha" Discriminant validity was evaluated using the Heterotrait Monotrait Ratio; results below 0.90 were deemed acceptable.

The second stage involved evaluation of the structural model to assess the strength and direction of relationships among variables.

Collinearity was examined using variance inflation factor values, followed by assessment of R^2 values to evaluate the predictive power of endogenous constructs. "Predictive relevance was assessed using Q^2 values, while effect sizes were evaluated using f^2 values to determine the contribution of each predictor. Path significance was tested using bootstrapping with 5,000 subsamples, with t values and p values used as the basis for hypothesis testing. The PLS SEM approach provides robust estimation even in complex models and when data distributions deviate from normality".

RESULTS

Respondent Characteristic

The characteristics of the respondents in this study are presented in Table 1. The respondents represent diverse groups in terms of age, gender, occupation, and visit frequency, indicating a heterogeneous patient background. This demographic information provides an overview of the study sample and was not included as variables in the hypothesis testing.

Table 1. Demographic Information

Variable	Frequency (N)	Percentage (%)
Age (year)		
< 20	32	5,03
20-30	271	42,61
31-40	240	37,73
41-50	84	13,21
>50	9	1,42
Gender		
Male	299	47,01
Female	337	52,99
Occupation		
Housewife	49	7,70
Student	123	19,34
Private Sector Employee	196	30,82
Government Employee	152	23,90
Entrepreneur	102	16,04
Police Officer	10	1,57
Freelancer	4	0,63
Visit Frequency		
First Visit	104	16,35
2-3 Visits	253	39,78
4-5 Visits	204	32,08
> 5 Visits	75	11,79

Source: Processed by the Authors

Table 1 presents the profile of the respondents. Respondents aged under 20 years accounted for 32 individuals (5.03%), those aged 20 to 30 years comprised 271 individuals (42.61%), respondents aged 31 to 40 years totaled 240 individuals (37.73%), those aged 41 to 50 years

accounted for 84 individuals (13.21%), and respondents aged over 50 years comprised 9 individuals (1.42%). In terms of gender, the respondents consisted of 299 males (47.01%) and 337 females (52.99%). Regarding occupation, 49 respondents (7.70%) were housewives, 123 respondents (19.34%) were students, 196 respondents (30.82%) were private sector employees, 152 respondents (23.90%) were civil servants, 102 respondents (16.04%) were entrepreneurs, and 10 respondents (0.63%) were police officers. Based on visit frequency, 104 respondents (16.35%) were first time visitors, 253 respondents (39.78%) had visited two to three times, 204 respondents (32.08%) had visited four to five times, and 75 respondents (11.79%) had visited more than five times.

Outer Loadings

Table 2. Outer Loadings Values

	WT		AE		TAN		REL
WT1	0,722	AE1	1,000	TAN1	0,859	REL1	1,000
WT3	0,702			TAN4	0,777		
WT7	0,722						
	RES		ASS		EMP		PS
RES1	0,795	ASS1	0,778	EMP1	0,781	PS1	0,859
RES4	0,789	ASS4	0,798	EMP4	0,784	PS4	0,798

Source: Data processed using SmartPLS 4.0

Table 2 presents the outer loading values of all variables after item dropout was applied. All indicators were deemed valid, as they exhibited outer loading values greater than 0.70. Waiting time was treated as a lower order construct with indicators WT1, WT3, and WT7; administrative efficiency was measured using indicator AE1; and patient satisfaction was represented by indicators PS1 and PS4. The SERVQUAL dimensions, namely tangibles (TAN1, TAN4), reliability (REL1), responsiveness (RES1, RES4), assurance (ASS1, ASS4), and empathy (EMP1, EMP2), were also specified as lower order constructs, which subsequently formed the higher order SERVQUAL construct. Overall, all lower order constructs satisfied the criteria for convergent validity, with outer loading values exceeding the recommended threshold of 0.70.

Average Variance Extracted (AVE)

Table 3. AVE Values

	AVE	Result
Waiting Time	0,512	Valid
Administrative Efficiency	1,000	Valid
Tangible	0,670	Valid
Reliability	1,000	Valid
Responsiveness	0,628	Valid
Assurance	0,621	Valid
Empathy	0,612	Valid
Patient Satisfaction	0,687	Valid

Source: Data processed using SmartPLS 4.0

The Average Variance Extracted (AVE) values are shown in Table 3. Since every lower order construct in the table has an AVE value better than 0.50, they are all considered as valid. This suggests that over 50% of the variance of any indicator may be explained by any lower-level concept.

Discriminant Validity

Table 4. Discriminant Validity

	AE	ASS	EMP	PS	REL	RES	TAN	WT
AE								
ASS	0,466							
EMP	0,533	0,581						
PS	0,347	0,773	0,750					
REL	0,179	0,447	0,473	0,383				
RES	0,417	0,864	0,795	0,620	0,393			
TAN	0,417	0,679	0,831	0,676	0,404	0,697		
WT	0,383	0,735	0,866	0,677	0,398	0,820	0,700	

Source: Data processed using SmartPLS 4.0

Notes; AE = Administrative Efficiency, ASS = Assurance, EMP = Empathy, PS = Patient Satisfaction, REL = Reliability, RES = Responsiveness, TAN = Tangibles, WT = Waiting Time

Table 4 “presents the results of the discriminant validity assessment using the Heterotrait–Monotrait Ratio (HTMT). All lower order constructs demonstrate satisfactory discriminant validity, as all HTMT values are below the recommended threshold of 0.90.”

Reliability

Table 5. Reliability Result

	Composite Reliability	Result
Waiting Time	0,759	Reliable
Administrative Efficiency	1,000	Reliable
Tangible	0,802	Reliable
Reliability	1,000	Reliable
Responsiveness	0,771	Reliable
Assurance	0,766	Reliable
Empathy	0,759	Reliable
Patient Satisfaction	0,814	Reliable

Source: Data processed using SmartPLS 4.0

Table 5 presents the results of the reliability assessment. All lower order constructs are considered reliable and demonstrate satisfactory internal consistency, as each construct exhibits a composite reliability value greater than 0.70.

R Square (R^2)

In this study, waiting time, administrative efficiency, and patient satisfaction are treated as low-order constructs, while SERVQUAL is modeled as a high-order construct built from the low-order constructs tangibles, reliability, responsiveness, empathy, and assurance. The R^2

value for patient satisfaction as the endogenous variable is 0.264, indicating that factors such as waiting time, administrative efficiency, and SERVQUAL collectively explain 26.4% of the variance in patient satisfaction, while the remaining 73.6% is influenced by other factors not included in this study.

f Square (f^2)

Table 6. f Square Values

	AE	PS	SQ	WT
AE		0,003	0,122	
PS				
SQ		0,139		
WT		0,019	0,292	

Source: Data processed using SmartPLS 4.0

Notes; AE = administrative efficiency, PS = patient satisfaction, SQ = service quality, WT = waiting time

The findings of the f2 impact size study are shown in Table 6. Since both waiting time and administrative efficiency have f2 values below 0.02, their influence on patient satisfaction is considered as insignificant. With f2 values more than or equal to 0.02 but less than 0.15, the impacts of administrative efficiency on service quality and service quality on patient satisfaction are classified as modest effects. However, because the f2 value is more than or equal to 0.15 but less than 0.35, the impact of waiting time on service quality is categorized as a moderate effect.

Q Square (Q^2)

The Q-square value with patient satisfaction as the dependent variable was 0.175, while the Q-square value with SERVQUAL as the dependent variable was 0.154. These results indicate that the research model demonstrates good predictive relevance, as all Q-square values are greater than zero.

Model Fit

The results show that the Standardized Root Mean Square Residual (SRMR) value of the model is 0.089. An SRMR value below 0.10 indicates that the model has an acceptable fit.

Hypothesis Testing Results

In the second stage of analysis, waiting time, administrative efficiency, and patient satisfaction were treated as low-order constructs using the Two-Stage Approach for Second-Order Factors. SERVQUAL was specified as a high-order construct, also referred to as a second-order construct. This construct was not directly measured by questionnaire items but was instead formed by its first-order constructs (LOCs), namely tangibles, reliability, responsiveness, assurance, and empathy. The latent variable scores of these five SERVQUAL dimensions were obtained from SmartPLS and subsequently used in the structural model analysis.

Table 7. Hypothesis Testing Results

	Original Sample	T Statistics	P Value	Result
Waiting Time → SERVQUAL	0,450	14,246	0,000	SUPPORTED
Administrative Efficiency → SERVQUAL	0,291	9,580	0,000	SUPPORTED
SERVQUAL → Patient Satisfaction	0,401	9,687	0,000	SUPPORTED
Waiting Time → Patient Satisfaction	0,139	3,772	0,000	SUPPORTED
Administrative Efficiency → Patient Satisfaction	0,052	1,315	0,188	NOT SUPPORTED
Waiting Time → SERVQUAL → Patient Satisfaction	0,181	7,375	0,000	SUPPORTED
Administrative Efficiency → SERVQUAL → Patient Satisfaction	0,117	6,686	0,000	SUPPORTED

Source: Data processed using SmartPLS 4.0

Based on Table 7, the results of hypothesis testing are as follows:

1. "*Waiting time* has a positive effect on *SERVQUAL*, with an original sample value of 0.450, a t-statistic of 14.246, and a p-value of 0.000.
2. *Administrative efficiency* has a positive effect on *SERVQUAL*, with an original sample value of 0.291, a t-statistic of 9.580, and a p-value of 0.000.
3. *SERVQUAL* has a positive effect on *patient satisfaction*, with an original sample value of 0.401, a t-statistic of 9.687, and a p-value of 0.000.
4. *Waiting time* has a positive effect on *patient satisfaction*, with an original sample value of 0.139, a t-statistic of 3.772, and a p-value of 0.000.
5. *Administrative efficiency* does not have a significant effect on *patient satisfaction*, as indicated by an original sample values of 0.052, a t-statistic of 1.315, and a p-value of 0.188.
6. *SERVQUAL* partially mediates the effect of *waiting time* on *patient satisfaction*, with an original sample value of 0.181, a t-statistic of 7.375, and a p-value of 0.000.
7. *SERVQUAL* fully mediates the effect of *administrative efficiency* on *patient satisfaction*, with an original sample value of 0.117, a t-statistic of 6.686, and a p-value of 0.000".

Important Performance Map Analysis (IPMA)

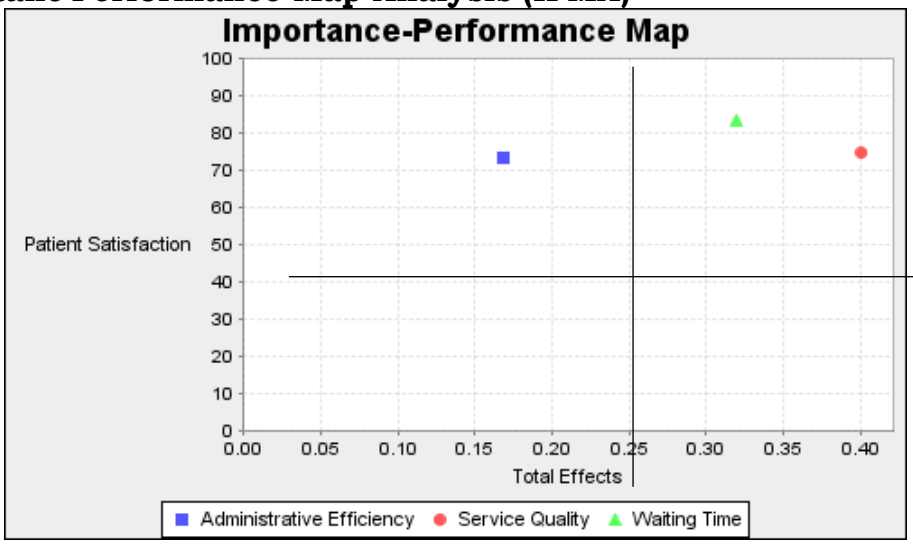

Figure 2. Important Performance Map Analysis

Source: Data processed using SmartPLS 4.0

Table 8. Important Performance Map Analysis

Variable	Importance (X)	Performance (Y)	Position
Waiting Time	0.320	83,530	High Importance, High Performance
Administrative Efficiency	0.169	73,506	High Importance, Lower Performance
SERVQUAL	0.401	74,669	High Importance, High Performance

Source: Data processed using SmartPLS 4.0

Based on Figure 2, it can be observed that the variables waiting time and SERVQUAL are positioned in Quadrant I, while administrative efficiency is located in Quadrant II. This indicates that waiting time and SERVQUAL (service quality) are considered important factors with strong performance and therefore should be maintained. In contrast, administrative efficiency is regarded as an important factor with relatively poor performance, making it a priority for improvement. This assessment is based on the importance–performance quadrants proposed by Martilla and James (1977).

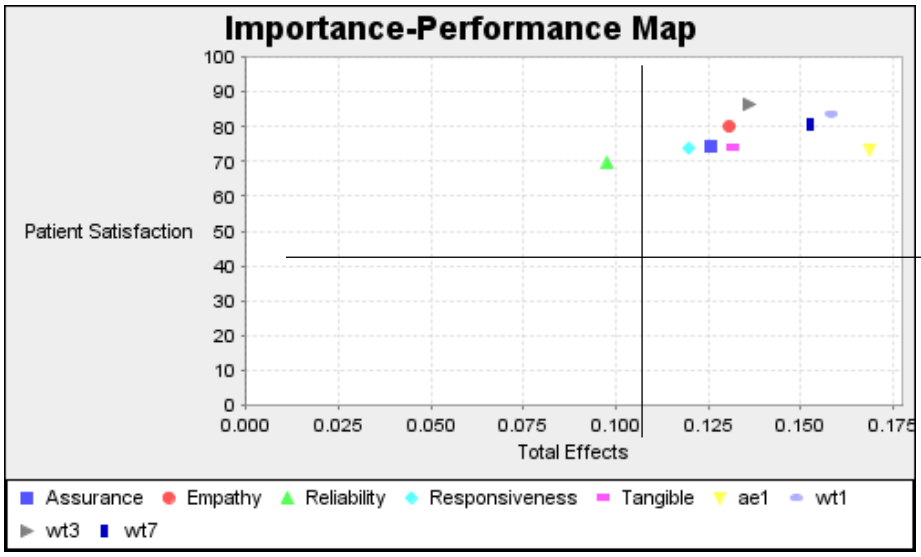

Figure 3. Important Performance Map Analysis Indicators

Source: Data is processed by using SmartPLS 4.0

Table 9. Important Performance Map Analysis Indicators

Variable	Importance (X)	Performance (Y)	Position
Assurance	0,125	74,209	High Importance, High Performance
Empathy	0,131	80,119	High Importance, High Performance
Reliability	0,098	69,568	High Importance, High Performance
Responsiveness	0,119	73,785	High Importance, High Performance
Tangible	0,131	74,283	High Importance, High Performance
Ae1	0,169	73,506	High Importance, High Performance
Wt1	0,158	83,753	High Importance, High Performance
Wt3	0,136	86,478	High Importance, High Performance
Wt7	0,152	80,660	High Importance, High Performance

Based on Figure 3, all indicators for each variable are in quadrant one. All indicators in this study are categorized as important and performing well, so they must be maintained to maintain patient satisfaction.

DISCUSSION

Effect of Waiting Time on SERVQUAL

According to the study's findings, SERVQUAL is positively impacted by waiting time. This result is in line with other studies that highlight how waiting times are a big issue for service businesses and have a big impact on how well customers perceive their services (Sarkar et al., 2011). It has been demonstrated that efficient waiting time management improves the quality of hospital services both objectively and subjectively. (Zhang et al., 2023). Discrepancies between expected and perceived waiting time also play a crucial role in shaping service quality perceptions (Lee & Lambert, 2000). Furthermore, waiting time has been reported as an important determinant of service quality in emergency departments and as a significant barrier to accessing healthcare services (Hidayat et al., 2020; McIntyre et al., 2020).

Effect of Administrative Efficiency on SERVQUAL

The findings reveal that administrative efficiency has a positive effect on SERVQUAL. This result is supported by previous studies demonstrating a significant influence of administrative performance on service quality (Niswaty et al., 2022). Administrative ethics and staff competencies, including both technical and non-technical skills, also play a critical role in improving patients' perceived service quality (Latif, 2023; Zakhiroh, 2013).

Effect of SERVQUAL on Patient Satisfaction

According to the results, SERVQUAL increases patient satisfaction. This finding aligns with a substantial amount of studies demonstrating that service quality has a favorable and considerable influence on patient satisfaction (Kautsar et al., 2017; Khayru & Issalillah, 2022). Numerous facets of service quality have been shown to enhance patient satisfaction and are significant factors in determining overall satisfaction. (Emon et al., 2023; Novitasari, 2022).

Effect of Waiting Time on Patient Satisfaction

The findings demonstrate that shorter waiting times have a positive effect on patient satisfaction. Previous research has similarly reported that waiting time in healthcare facilities significantly influences patient satisfaction levels (Garedew et al., 2025). Differences between expected and perceived waiting time also affect customer satisfaction (Lee & Lambert, 2000). Moreover, the impact of waiting time on satisfaction varies by gender and type of clinic, with family medicine clinics exhibiting higher satisfaction levels compared to specialty clinics (Nottingham et al., 2018; Al-Harajin et al., 2019). Other studies have also shown that actual waiting time is negatively associated with patient satisfaction (Xie & Or, 2017).

Effect of Administrative Efficiency on Patient Satisfaction

The findings of this study indicate that administrative efficiency does not have a direct effect on patient satisfaction. This result contradicts previous studies suggesting that the speed of service and the attitudes of administrative staff significantly influence patient satisfaction (Pasaribu et al., 2024). Other studies have also emphasized the importance of effective hospital administration and high-quality administrative services in enhancing patient satisfaction (Bhati et al., 2023; Asif et al., 2019).

The Mediating Role of SERVQUAL

The investigation's findings show that while waiting time still has a large direct impact on patient satisfaction, SERVQUAL moderates this association to some extent. Therefore, when SERVQUAL is used to assess perceived service quality, waiting time has a bigger impact on patient satisfaction.

Additionally, as administrative efficiency had no discernible direct impact on patient satisfaction, SERVQUAL was found to fully mediate the link between the two. Stated differently, administrative efficiency has no discernible impact on patient satisfaction in the absence of the mediating function of perceived service quality (SERVQUAL).

CONCLUSION

The results of this study show that patient satisfaction and SERVQUAL are positively impacted by waiting time. While SERVQUAL is positively impacted by administrative efficiency, patient satisfaction is not directly impacted. It has been discovered that SERVQUAL improves patient satisfaction. Additionally, SERVQUAL entirely mediates the association between administrative efficiency and patient satisfaction and somewhat mediates the association between waiting time and patient satisfaction. Waiting time and SERVQUAL are identified as important factors with strong performance and therefore should be maintained. Administrative efficiency is identified as an important factor with relatively weak performance, making it a priority for improvement in order to enhance patient satisfaction. Sustaining effective waiting time management and high service quality is essential to ensure that patient satisfaction remains at a favorable level.

This study was conducted in only five dental clinics located in Jakarta. Time constraints limited the ability to supervise the data collection process rigorously, as data were collected through self-administered surveys. In addition, the study was restricted to a quantitative research design and focused solely on variables such as waiting time, SERVQUAL, and patient satisfaction. Future studies may incorporate the sample of patients from dental clinics in other countries in Singapore. Additionally, a mixed methods study design that incorporates both quantitative and qualitative methodologies, along with other components such as the clinic or hospital image, is suggested for future research.

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