

Factors Determining Patient Satisfaction Levels at NDC Dental Clinics in Indonesia

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Abstract

This study was conducted to determine the extent to which patient satisfaction is influenced by factors such as service quality dimensions at the NDC dental clinic. Causal relationships between variables were tested, and a quantitative design was chosen. A total of 600 patients who visited the clinic between December 2025 and January 2026 were involved as respondents. Purposive sampling was applied as the sampling technique. PLS-SEM was chosen as the data analysis method. It was found that medical treatment procedures, tangibility, and empathy were factors that influenced patient satisfaction. In contrast, social influence, administrative practices, hospital image, reliability, assurance, and responsiveness were not factors that influenced patient satisfaction. Empathy and tangibility are important constructs with strong performance; therefore, these factors must be maintained to maintain patient satisfaction. This study contributes to the development of SERVQUAL theory by adding social influence factors to the dental clinic context.

Keywords: Dental Clinic, Patient Satisfaction, Service Quality.

INTRODUCTION

The increasing number of clinics established by both private and public sectors indicates that healthcare plays a crucial role in society (Akbar et al., 2023). According to Law of the Republic of Indonesia No. 44 of 2009, everyone has a fundamental right to healthcare services, which must be recognized through initiatives to attain the best possible level of public health. Furthermore, every hospital must prioritize patient interests and adhere to hospital service standards in order to provide high-quality, safe, nondiscriminatory, and effective healthcare services. (Akbar et al., 2023). High-quality, safe, and effective healthcare services are reflected in patient satisfaction.

Patient satisfaction has become a key indicator of healthcare service quality (Xesfingi & Vozikis, 2016). Patient satisfaction outcomes serve as essential feedback for improving service quality and access to healthcare (Cosma et al., 2020). As confirmed by previous research, patient evaluation of healthcare services is crucial for identifying service gaps and developing plans to maintain quality (Al-Abri & Al-Balushi,

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2014). Therefore, hospitals are encouraged to consider patient satisfaction as a primary measure of healthcare quality (Bjertnaes et al., 2012).

Patient satisfaction arises as a consequence of the relationship and interaction between the patient and the health care provider (Goodrich & Lazenby, 2023). Satisfaction occurs when clinics are able to meet patient expectations by delivering high-quality healthcare services (Ahmad et al., 2011). Satisfied patients are beneficial in increasing the patient's intention to return to the healthcare provider (Mandagi et al., 2024). Satisfied patients tend to develop loyalty toward healthcare providers (Chen et al., 2022) and are more willing to recommend healthcare organizations to others (Park et al., 2022). Various factors influence patient satisfaction, including social responsibility, hospital image, personnel quality, patient safety (Tan et al., 2019). Waiting time is also recognized as a determinant of patient satisfaction. (Zhang et al., 2023). Patient-centered communication has also been found to positively affect patient satisfaction (Çakmak & Uğurluoğlu, 2024). Total quality management has been identified as a factor that enhances patient satisfaction (Alkhaldi & Abdallah, 2022). Emotional factors, social influence, and trust have also been shown to increase patient satisfaction (Nguyen et al., 2021). Additionally, staff competence, interpersonal communication, and care standards are key drivers of patient satisfaction (Eliza et al., 2024).

Previous studies have employed factors such as reliability, assurance, tangibility, empathy, responsiveness, administrative practices, medical care procedures and hospital image to predict patient satisfaction (Padma et al., 2010; Tan et al., 2019). This study has a gap: previous studies were applied in a general hospital context, while the current study was applied to a dental clinic. The previous studies had a population gap: they were conducted in countries like India and Malaysia, while the current study was conducted in Indonesia. The current study included social influence, which previous studies did not. This approach aligns with the recommendation of Tan et al. (2019), which recommends that future research involve neighboring countries such as Indonesia, Singapore, and Thailand, and other countries in the Asian region, to compare the results of the influence of service quality in determining patient satisfaction levels. While previous studies focused on hospital patients, this study specifically examines patients in a dental clinic setting.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Social Influence on Patient Satisfaction

Social influence refers to patients' perceptions of a healthcare provider's reputation formed through close social networks, social media, and communication with medical professionals (Nguyen et al., 2021). In Theory of Planned Behavior, social influence falls under the category of subjective norms, namely the influence of others in shaping a person's intention to perform or develop a behavior (Ajzen, 1991). This social

influence shapes patient expectations regarding services. If services meet expectations formed by the social environment, patient satisfaction increases. In the context of health services, this influence can shape patients' perceptions and expectations regarding the quality of services received (Sudirman et al., 2024). Social Influence Theory also explains that patients can feel satisfied following recommendations from others (Kelman, 2017).

In the context of healthcare, patient decisions and perceptions are not entirely individual, but are heavily influenced by the social environment. According to Icek Ajzen's Theory of Planned Behavior, subjective norms (social influence) are a key determinant of individual intentions and behavior (Ajzen, 1991). This means that patients tend to follow the advice of family and friends, consider the opinions of healthcare professionals, and are influenced by social norms in their environment. This makes social influence relevant in decision-making regarding healthcare utilization and shapes perceptions or satisfaction with the services received from healthcare providers. Patients' perceptions of a dental clinic's reputation through these channels play a significant role in determining their level of satisfaction. Social media has been proven to have a positive impact on customer satisfaction (Ramanathan et al., 2017). Although social influence has been underrepresented in service quality literature, it has been found to exert one of the strongest effects on customer satisfaction (Nguyen et al., 2021).

Medical Care Procedure on Patient Satisfaction

Medical care procedures represent matters related to technically qualified health services., reflecting the breadth and depth of care provided. When healthcare providers fail in this aspect, patients tend to disregard other service elements; even friendly staff may not compensate for inadequate professional competence and skills (Padma et al., 2010). Patients perceive medical procedures as essential in healthcare, and deviations from patient goals and expectations make other dimensions of service quality less relevant. (Tan et al., 2019). The Donabedian model divides service quality into structure (facilities, human resources and infrastructure), process (including medical care procedures), outcome (including patient satisfaction) (Yang et al., 2025). A good process such as one that complies with standards, is safe and precise will produce good outcomes. Thus, medical care procedures are expected to influence or determine the level of patient satisfaction.

Administrative Practice on Patient Satisfaction

In the Donabedian model, administrative practices such as registration, service flow, queuing systems, and documentation are included in the structure and processes (Yang et al., 2025). Efficient administration can streamline services and increase patient satisfaction. Administrative practice includes admission, treatment, and discharge processes (Padma et al., 2010). Several studies have reported patient dissatisfaction related to perceived very long waiting times. (Lee et al.,

2020; Shin et al., 2024; Xie & Or, 2017). Ease of appointment scheduling, ambulance services, admission, and discharge procedures are important to patients (Padma et al., 2010). All employees should demonstrate care for patients, safeguard and enhance the hospital's reputation, build patient trust, and ensure patient safety during healthcare delivery (Boshoff & Gray, 2004). Some patients have expressed dissatisfaction with waiting times in clinical settings (Al-Harajin et al., 2019). Therefore, effective administration practices are necessary to make a patient feel more satisfied.

Hospital Image on Patient Satisfaction

Based on Oliver's expectation confirmation theory, hospital image shapes patients' initial expectations. Patients with a positive image of a dental clinic will have high expectations for service quality (Oliver, 2014). If the service meets or exceeds this image, satisfaction will increase. This means that hospital image plays a role in determining patients' assessment of service.

Hospital image is a crucial characteristic of healthcare providers aimed at maximizing market share and profitability (Tan et al., 2019). A positive hospital image enhances patients' intention to revisit healthcare providers (Ko, 2021) and fosters patient loyalty (Akbolat et al., 2023). Previous research has demonstrated that a hospital's image is a contributing factor to patient satisfaction (Asnawi et al., 2019; Tan et al., 2019).

Reliability on Patient Satisfaction

Reliability is defined as the ability to provide services accurately and dependably (Parasuraman et al., 1988). Accuracy of diagnosis, accuracy of schedule, and consistency of service in health services enhances patient satisfaction. Previous studies confirm that the better the reliability, the greater the patient satisfaction (Ali et al., 2021).

Assurance on Patient Satisfaction

Theoretically, assurance is closely linked to patient satisfaction because healthcare is inherently fraught with uncertainty and high risk. In such situations, patients rely heavily on the competence of healthcare professionals. Therefore, healthcare professionals' ability to provide assurance of safety, trust, and convincing communication will enhance patients' positive perceptions of the care they receive. Assurance is defined as the knowledge and abilities of employees in an effort to foster trust and confidence (Parasuraman et al., 1988). Trust in clinic staff contributes to higher patient satisfaction. Several studies have found that assurance can increase patient satisfaction levels (Idealistiana, 2023; Tan et al., 2019).

Tangibility on Patient Satisfaction

According to the Expectation-Confirmation Theory proposed by Oliver (2014), patient satisfaction is determined by the match between

expectations and perceived performance. Tangibility is a form of performance easily observed by patients. When the condition of the facility and service environment meets or exceeds patient expectations, satisfaction will increase. Tangibility includes physical equipment, facilities, and staff appearance (Parasuraman et al., 1988). Well-maintained facilities, complete equipment, and professional staff appearance enhance patient satisfaction. The positive effect of tangibility on patient satisfaction has been proven in previous studies (Ali et al., 2021; Manshur et al., 2022).

Empathy on Patient Satisfaction

Furthermore, within the Donabedian Model framework by Avedis Donabedian, empathy is included in the service process, particularly in the interaction between healthcare professionals and patients (Yang et al., 2025). A service process that prioritizes empathy will result in a positive experience that contributes to patient satisfaction. Empathy is the extent to which an organization provides attention or contribution to patients and understand patients' specific needs (Parasuraman et al., 1988). Patient-centered care and the ability to understand patient needs contribute to higher levels of satisfaction. Previous studies have demonstrated that the higher the empathy from the hospital, the more likely patients are to feel satisfied with the service (Ali et al., 2021; Tan et al., 2019).

Responsiveness on patient satisfaction

According to Expectation-Confirmation Theory, patient satisfaction is formed from a comparison between expectations and perceived performance (Oliver, 2014). Responsiveness reflects service performance that is readily observable to patients, particularly in terms of speed and responsiveness. When service meets or exceeds patient expectations, satisfaction increases. Responsiveness describes the willingness of service providers to assist patients and ensure that services are delivered in a timely manner (Parasuraman et al., 1988). Timely and helpful services increase patient satisfaction. Previous studies have identified responsiveness as a factor driving patient satisfaction (Idealistiana, 2023; Tan et al., 2019).

METHOD

Quantitative research design was applied to analyze the influence of eight exogenous variables on one endogenous variable. The study was conducted within a specified period using a cross-sectional approach. Purposive sampling was applied, with inclusion criteria comprising dental clinic patients who had visited the clinic at least twice, must be 18 years of age or older, were willing to complete the questionnaire, and were able to read and write.

The measurement instrument is adapted linguistically from Tan et al. (2019) and (Nguyen et al., 2021) which consists of 60 indicators. Following the recommendation of Hair et al. (2019), The sample size was

obtained by multiplying 60 indicators by 10, and after calculating, a total of 600 respondents were obtained. Data were obtained using a structured questionnaire with five response options ranging from 1 (lowest) to 5 (highest). PLS SEM and IPMA were applied in the data analysis process.

PLS SEM is carried out in two stages, the first is the outer model and then the inner model. The outermost model contains factor loading values, AVE, Cronbach's alpha along with composite reliability, and HTMT. The inner model contains R, f, and Q-square values. Model fit is checked using the standardized root mean square residual value.

RESULTS AND DISCUSSION

Respondent Descriptive

Table 1. Respondent Descriptive

Variable	Frequency	(%)
Gender		
Male	188	31.33
Female	412	68.67
Age		
18–35	509	84.83
36–45	72	11.83
46–59	19	3.17
Clinic Branch Locations		
Pandaan	153	25.50
Batu	142	23.67
Sawojajar	151	25.17
Araya	154	25.67
Monthly Income		
< IDR 5 million	299	49.83
IDR 5–10 million	253	42.17
> IDR 10 million	48	8.00
Visit Frequency		
2–3 times	274	45.67
> 3 times	326	54.33

Source: Data is processed using Google Forms data (2026)

From the table above it can be seen 412 were female and 188 were male. A total of 509 Respondents have an age range of 18 to 35 years, 72 Respondents have an age range of 36 to 45 years, and 19 Respondents were aged between 46 and 59 years. Regarding clinic branch locations, 153 Respondents received treatment at the Pandaan branch, 142 at the Batu branch, 151 at the Sawojajar branch, and 154 at the Araya branch. In terms of monthly income, 299 Respondents reported earning less than 5 million, 253 Respondents reported monthly incomes ranging from IDR 5 million to 10 million, and 48 Respondents reported earning more than 10 million. With respect to visit frequency, 274 Respondents reported visiting the clinic two to three times, while 326 Respondents reported visiting the clinic more than three times.

Outer Model

Table 2. Outer Loadings Values

	SI		MCP		AP		HI		TAN
SI1	0.816	MCP4	0.939	AP1	0.932	HI1	0.896	TAN1	0.878
SI2	0.855	MCP5	0.947	AP2	0.921	HI3	0.919	TAN2	0.918
SI3	0.914					HI4	0.945	TAN3	0.912
SI4	0.889							TAN4	0.865
SI5	0.864								
SI6	0.883								
	REL		RES		ASS		EMP		PS
REL4	0.973	RES1	0.910	ASS2	1.000	EMP3	0.960	PS1	1.000
REL6	0.972	RES2	0.953			EMP4	0.970		
		RES3	0.910			EMP5	0.963		
		RES4	0.905						

Source: Processed from survey data, own processing, 2025

Note: SI = social influence; MCP = medical care procedures; AP = administrative practice; HI = hospital image; REL = reliability; TAN = tangibility; RES = responsiveness; EMP = empathy; ASS = assurance; PS = patient satisfaction.

Table 2 presents the factor loadings for each variable. All loading values exceed 0.70, indicating that all measurement items satisfy the required convergent validity criteria. Subsequently, construct validity was assessed for each variable. Social influence was treated as a lower-order construct (LOC) measured by indicators or item SI1, SI2, SI3, SI4, SI5, and SI6. Medical care procedures were treated as a LOC measured by indicators MCP4 and MCP5. Administrative practice was treated as a LOC measured by indicators AP1 and AP2. Hospital image was treated as a LOC measured by indicators HI1, HI3, and HI4. Tangibility were treated as a LOC measured by indicators TAN1, TAN2, TAN3, and TAN4. Reliability was treated as a LOC measured by indicators or item REL4 and REL6. Responsiveness was treated as a LOC measured by indicators RES1, RES2, RES3, and RES4. Assurance was treated as a lower-order construct measured by indicator ASS2. Empathy was treated as a lower-order construct measured by indicators EMP3, EMP4, and EMP5. Patient satisfaction was treated as a lower-order construct measured by indicator PS1.

Table 2 shows that assurance and patient satisfaction are measured by a single item due to inadequate discriminant validity testing. However, using single-item measures in survey research can be a strategy to reduce survey length and produce a more desirable response rate (Fisher et al., 2016). For a long time, the use of single-item measures was considered a method that was sure to be met with resistance from journal editors, but a series of articles published in the late 1990s and 2000s began to challenge the conventional view that single-item measures were an inappropriate approach to measuring cognitive and affective outcomes (Allen et al., 2022). The use of single-item measures, if conducted systematically using concrete, validated items, should not be considered a fatal flaw in research (Fisher et al., 2016). Some reasons why single item measurement is maintained are that this measurement saves time, is more satisfying for test participants, reduces data

processing costs, and reduces ambiguity in measuring the construct of interest (Allen et al., 2022).

Table 3. AVE Values

	AVE	Description
Social Influence	0.758	Valid
Medical Care Procedures	0.890	Valid
Administrative Practice	0.859	Valid
Hospital Image	0.847	Valid
Tangibility	0.798	Valid
Reliability	0.946	Valid
Responsiveness	0.846	Valid
Assurance	1.000	Valid
Empathy	0.929	Valid
Patient Satisfaction	1.000	Valid

Source: Data is processed using SmartPLS 3 (2026)

Table 3 presents the AVE values indicating that all constructs are valid, as each exhibits an AVE value greater than 0.50. This result demonstrates that social influence, medical care procedures, administrative practice, hospital image, reliability, tangibility, responsiveness, empathy, assurance, and patient satisfaction meet the convergent validity criteria and are capable of adequately measuring their intended constructs.

Table 4. Discriminant Validity

	AP	ASS	EMP	HI	MCP	PS	REL	RES	SI	TAN
AP										
ASS	0.732									
EMP	0.790	0.896								
HI	0.880	0.796	0.832							
MCP	0.881	0.781	0.821	0.839						
PS	0.785	0.791	0.859	0.799	0.811					
REL.	0.820	0.862	0.879	0.827	0.835	0.805				
RES	0.781	0.810	0.841	0.822	0.784	0.776	0.869			
SI	0.655	0.620	0.598	0.659	0.674	0.600	0.639	0.681		
TAN.	0.884	0.871	0.882	0.884	0.865	0.866	0.876	0.866	0.716	

Source: Data is processed using SmartPLS 3 (2026)

Note: SI = social influence, MCP = medical care procedures, AP = administrative practice, HI = hospital image, REL = reliability, TAN = tangibility, RES = responsiveness, EMP = empathy, ASS = assurance, PS = patient satisfaction

Table 4 presents the discriminant validity scores using HTMT or Heterotrait–Monotrait Ratio. All lower order constructs demonstrate satisfactory discriminant validity, because all HTMT values have a score < 0.90.

Table 5. Reliability Result

	Cronbach's Alpha (CA)	Composite Reliability (CR)	Information
Social Influence	0.936	0.949	Reliable
Medical Care Procedures	0.876	0.942	Reliable
Administrative Practice	0.836	0.923	Reliable
Hospital Image	0.910	0.943	Reliable
Tangibility	0.915	0.940	Reliable
Reliability	0.943	0.972	Reliable
Responsiveness	0.939	0.956	Reliable
Assurance	1.000	1.000	Reliable

	Cronbach's Alpha (CA)	Composite Reliability (CR)	Information
Empathy	0.962	0.975	Reliable
Patient Satisfaction	1.000	1.000	Reliable

Source: Data was processed using SmartPLS 3 (2026)

Table 5 presents the results of the reliability assessment, showing that all constructs exhibit Cronbach's Alpha and Composite Reliability values greater than 0.70, in accordance with the criteria suggested Hair et al. (2019). These findings indicate that all constructs demonstrate satisfactory internal consistency and are therefore considered reliable, allowing the analysis to proceed to the subsequent stage. Constructs with the highest reliability values, such as assurance and patient satisfaction, were also retained in the model, as values above the recommended threshold remain acceptable (Hair et al., 2019).

Inner Model

The results of this study indicate an R-squared (R^2) value of 0.779. This value suggests that the factors examined in this study collectively explain 77.9% of the variance in the patient satisfaction variable, while the remaining 22.1% is due to other factors outside the model.

Table 6. f Square Values

Variable	Patient Satisfaction
Social Influence	0.000
Medical Care Procedures	0.023
Administrative Practice	0.002
Hospital Image	0.004
Reliability	0.001
Tangibility	0.063
Responsiveness	0.000
Empathy	0.119
Assurance	0.000

Source: SmartPLS 3 (2026)

Referring to Table 6, the effect of empathy on patient satisfaction shows an f^2 value of 0.119. The magnitude of the impact of medical care procedures on patient satisfaction levels produces an f^2 value of 0.023, while tangibility exhibit an f^2 value of 0.063. Empathy, medical care procedures, and tangibility demonstrate small effect sizes on patient satisfaction, as their f^2 values are equal to or greater than 0.02 but less than 0.15. The remaining factors do not exhibit any effect, as their f^2 values are below 0.02.

The results indicate a Q^2 value of 0.684 (> 0). This finding shows how good the predictive relevance of this research model is. The closer the Q^2 value is to 1, the stronger the model's ability to predict the endogenous construct. The results of this study indicate a SRMR value of 0.043 (< 0.08). This result indicates that the research model demonstrates an acceptable level of model fit.

Hypothesis Testing Results

Hypothesis testing was conducted using a one-tailed test with 5,000 bootstrap resamples. The results will be depicted in the following table:

Table 7. Research Result

	Original Sample	t Statistics	p Value	Information
SI --> PS	-0.001	0.015	0.494	Not Supported
MCP --> PS	0.132	1.732	0.042	Supported
AP --> PS	0.041	0.534	0.297	Not Supported
HI --> PS	0.060	0.823	0.206	Not Supported
TAN --> PS	0.281	2.059	0.020	Supported
REL --> PS	0.034	0.339	0.367	Not Supported
RES --> PS	0.016	0.213	0.416	Not Supported
ASS --> PS	-0.002	0.019	0.492	Not Supported
EMP --> PS	0.397	2.469	0.007	Supported

Source: Data from SmartPLS 3 (2026)

Referring to table 7, the results of the hypothesis testing found that social influence does not impact patient satisfaction (original sample = -0.001, $t = 0.015$, $p = 0.494$). Medical care procedures have a positive effect on patient satisfaction (original sample = 0.132, $t = 1.732$, $p = 0.042$). Administrative practice does not impact patient satisfaction (original sample = 0.041, $t = 0.534$, $p = 0.297$). Hospital image does not impact patient satisfaction (original sample = 0.060, $t = 0.823$, $p = 0.206$). Tangibility have a positive effect on patient satisfaction (original sample = 0.281, $t = 2.059$, $p = 0.020$). Reliability does not impact patient satisfaction (original sample = 0.034, $t = 0.339$, $p = 0.367$). Responsiveness does not impact patient satisfaction (original sample = 0.016, $t = 0.213$, $p = 0.416$). Assurance does not impact patient satisfaction (original sample = -0.002, $t = 0.019$, $p = 0.492$). Tangibility have a positive effect on patient satisfaction (original sample = 0.397, $t = 2.469$, $p = 0.007$).

Regarding the higher-order construct analysis, service quality has a position as a high-level construct., with its dimensions administrative practice, assurance, empathy, hospital image, medical care procedures, reliability, responsiveness, social influence, and tangibility serving as indicators. Hypothesis testing was conducted using a one-tailed bootstrapping procedure. The results indicate that service quality has a positive effect on patient satisfaction (original sample = 0.868, $p = 0.000$ (< 0.05). This finding suggests that, overall, patient satisfaction is collectively influenced by all dimensions of service quality.

Importance Performance Map Analysis (IPMA)

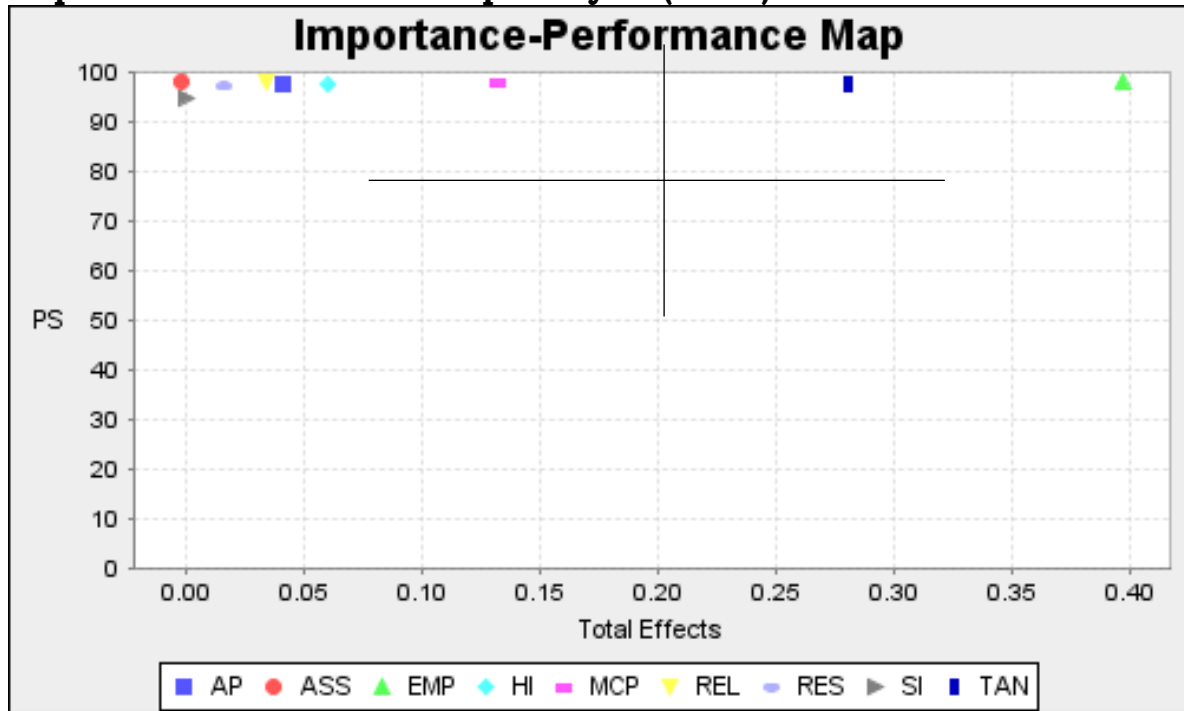


Figure 1. IPMA Constructs

Source: Data is processed using SMART PLS 3 (2026)

Table 8. IPMA Constructs

Variable	Importance (X)	Performance (Y)	Position
Social Influence	-0.001	95.020	High Importance, Low Performance
Medical Care Procedures	0.132	97.929	High Importance, Low Performance
Administrative Practice	0.041	97.646	High Importance, Low Performance
Hospital Image	0.060	97.585	High Importance, Low Performance
Tangibility	0.281	97.657	High Importance, High Performance
Reliability	0.034	98.208	High Importance, Low Performance
Responsiveness	0.016	97.309	High Importance, Low Performance
Assurance	-0.002	98.208	High Importance, Low Performance
Empathy	0.397	98.078	High Importance, High Performance

Source: Data from Smartpls 3 (2026)

The results of this study were analyzed using the IPMA framework proposed by Martilla & James (1977). The IPMA results indicate that empathy and tangibility are positioned in Quadrant I, while the remaining factors are located in Quadrant II. This finding suggests that empathy and tangibility are critical constructs with strong performance; therefore, these factors should be maintained to sustain patient satisfaction. Other factors, including social influence, medical care procedures, administrative practice, hospital image, reliability, responsiveness, and

assurance, are also important for maintaining patient satisfaction but exhibit relatively lower performance levels. Consequently, improvements in these factors are necessary to enhance overall patient satisfaction.

This study shows that social influence is not a driving factor of patient satisfaction. Variations in the level of social influence do not determine variations in patient satisfaction. Social influence refers to patients' perceptions of a healthcare provider's reputation formed through close social networks, social media, and communication with medical professionals (Nguyen et al., 2021). Patients' perceptions of a dental clinic's reputation through these channels are expected to shape their level of satisfaction. Although social influence has been underrepresented in service quality literature, this has been reported to have an impact on customer satisfaction. (Nguyen et al., 2021). However, the present findings suggest that such influence does not directly translate into patient satisfaction in the context of dental clinics.

This study found that medical care procedures are a factor that can increase patient satisfaction. Higher-quality medical care procedures are associated with increased patient satisfaction. When healthcare providers fail in this aspect, patients tend to disregard other service dimensions; even courteous staff may not compensate for inadequate professional competence and skills (Padma et al., 2010). Patients view medical care procedures as a key indicator of service, and if they do not meet their expectations it will make other elements of service quality less relevant (Tan et al., 2019).

The results indicate that administrative practice does not impact on patient satisfaction. Previous studies have reported patient dissatisfaction related to long waiting times (Lee et al., 2020; Shin et al., 2024; Xie & Or, 2017). Ease of appointment scheduling, ambulance services, admission, and discharge procedures are considered important by patients (Padma et al., 2010). Therefore, effective administrative procedures remain necessary to enhance healthcare service delivery, although their direct impact on patient satisfaction was not supported.

In this study, hospital image did not appear to have any influence on patient satisfaction. Whether a clinic has a positive or negative image does not determine patients' satisfaction levels. Hospital image is considered a critical characteristic of healthcare providers aimed at maximizing market share and profitability (Tan et al., 2019). A positive image has been shown to increase patients' revisit intentions (Ko, 2021) and foster patient loyalty (Akbolat et al., 2023). Previous studies have reported hospital image as a trigger for patient satisfaction (Tan et al., 2019); however, such an effect was not observed in the present study.

The results of statistical tests indicate that patient satisfaction is not influenced by reliability factors. This occurs because patients often take these expectations (such as timely, consistent, and accurate service) for granted. Consequently, if they are met, they do not significantly increase satisfaction, but if they are not met, they can lead to dissatisfaction. In the context of healthcare, emotional and interpersonal aspects such as empathy, responsiveness, and assurance are often more

powerful than technical aspects such as reliability (Tan et al., 2019). Differences in reliability do not determine differences in patient satisfaction. Reliability is also known as the ability to provide services that are dependable and accurate as promised (Parasuraman et al., 1988). Previous studies have shown reliability as a driving factor for patient satisfaction (Ali et al., 2021). The results of this study are supported by previous findings which stated that reliability does not impact patient satisfaction (Yunningsih, 2022). However, this relationship was not supported in the current research context.

Assurance was found to have no impact on patient satisfaction. Variations in assurance do not determine patient satisfaction levels. This result is supported by previous findings where assurance had no effect on patient satisfaction and empathy played a bigger role in the healthcare sector (Agustina & Handayani, 2023). Assurance is considered a basic need, so patients assume that competent healthcare professionals, courteous staff, and safe services are essential in dental clinics. Consequently, even when these requirements are met, they fail to significantly improve patient satisfaction. The results were not significant because patients had difficulty assessing the clinical skills and medical knowledge of health workers. Assurance reflects the knowledge and ability of employees to make patients confident and believe in hospital services (Parasuraman et al., 1988). Several findings identified that high levels of assurance would be matched by high patient satisfaction (Idealistiana, 2023; Tan et al., 2019). Nevertheless, the present findings do not support this relationship. This result is reinforced by previous findings that empathy and tangibility factors are stronger in influencing patient satisfaction than assurance (Suleiman & Abdulkadir, 2022).

Tangibility has been found to increase patient satisfaction. Higher levels of tangibility lead to higher patient satisfaction. Tangibility forms include the appearance of personnel, equipment and physical facilities (Parasuraman et al., 1988). Clinics with well-maintained facilities, adequate equipment, and professional staff appearance tend to enhance patient satisfaction. This result is in line with previous research that tangibility is a determining factor in patient satisfaction (Ali et al., 2021; Manshur et al., 2022).

Empathy was found to be a driving factor of patient satisfaction. The greater the empathy demonstrated by clinic staff toward patients, further increasing the level of patient satisfaction. Empathy reflects the extent to which healthcare providers offer individualized attention and understand patients' specific needs (Parasuraman et al., 1988). This finding is in line with previous research which reported that empathy plays a positive role in increasing patient satisfaction (Ali et al., 2021; Tan et al., 2019).

Responsiveness does not impact on patient satisfaction. This occurs because patients perceive healthcare professionals' responsiveness and rapid response as a necessity, not an added value. Other research shows that empathy tends to be a more dominant factor in patient satisfaction than responsiveness (Tan et al., 2019).

Responsiveness refers to the willingness or readiness to provide assistance to patients and provide services quickly (Parasuraman et al., 1988). Although previous research has identified responsiveness as an important determinant of patient satisfaction (Tan et al., 2019), this relationship was not supported in the present study. The results of this study are supported by previous findings which stated that responsiveness does not impact patient satisfaction (AlOmari & Hamid, 2022; Yunningsih, 2022).

CONCLUSION

This study demonstrates that patient satisfaction in dental healthcare services is primarily driven by empathy, tangibility, and medical care procedures, while other factors including social influence, administrative practice, reliability, responsiveness, hospital image, and assurance do not significantly influence patient satisfaction within the examined context. These findings highlight that interpersonal interaction, physical evidence, and the quality of clinical procedures play a more decisive role in shaping patient satisfaction than reputational or technical service attributes that are often perceived as basic expectations. From a theoretical perspective, this study contributes to the development of a more comprehensive service quality framework in dental healthcare by integrating traditional service quality dimensions with additional factors such as social influence, administrative practices, medical care procedures, and hospital image. The findings suggest that not all service quality dimensions exert equal influence, thereby refining existing models and offering a more context-specific understanding of patient satisfaction in dental clinic settings.

Based on the Importance Performance Map Analysis (IPMA), empathy and tangibility should be maintained as key strengths in enhancing patient satisfaction. Meanwhile, other factors, despite their perceived importance, demonstrate relatively lower performance and require strategic improvement. NDC Clinic is recommended to strengthen digital engagement across multiple platforms to improve social influence and patient perception. The implementation of standardized medical procedures through well-structured Standard Operating Procedures (SOPs) is essential to ensure service consistency and patient safety.

The adoption of digital healthcare systems, including online registration, electronic medical records (EMR), and automated billing, is crucial to improve operational efficiency and reduce administrative errors. Continuous training programs for both medical and non-medical staff should be prioritized, focusing on enhancing responsiveness, communication skills, empathy, and decision-making capabilities. Furthermore, encouraging professional certification and continuous competency development will strengthen both clinical and non-clinical service quality.

This study is subject to several limitations. First, the use of a cross-sectional design limits the ability to capture dynamic changes in patient satisfaction over time. Second, the study focuses on a dental clinic setting

in Indonesia, which may restrict the generalizability of the findings to other healthcare contexts or regions. Third, the reliance on a quantitative approach may not fully capture the depth of patient experiences and perceptions.

Future studies are encouraged to adopt longitudinal research designs to examine the evolution of patient satisfaction over time. Expanding the research scope to include dental clinics across different countries, particularly in Southeast Asia, would enhance the generalizability of the findings. Additionally, the use of mixed-method approaches is recommended to provide a more comprehensive understanding of patient satisfaction by integrating both quantitative and qualitative insights.

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