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Factors Influencing Patient Loyalty towards Dental Care Providers – Residents in Bangkok, Thailand

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Abstract

Purpose: The purpose of this study is to investigate the influence of service quality and reputation on patient satisfaction and patient loyalty. Specifically, the research is focused on exploring patient loyalty toward dental care providers in Bangkok, Thailand. **Research design, data, and methodology:** The research design, data collection, and methodology encompass both primary and secondary data sources. Employing a survey research design, the study successfully collected a valid sample of 385 patients who are residents of Bangkok, Thailand. The researcher adopted a non-probability sampling method, specifically employing the purposive sampling technique to gather data. The content validity of the study was established through an Index of Content Validity (IOC) assessed by three experts, while the internal consistency of the scale constructs for each variable was examined using Cronbach's Alpha to ensure reliability. The utilization of both descriptive and inferential statistical analyses, particularly multiple linear regression, was employed to determine the level of influence among the selected variables. Building upon the foundation of four frameworks from prior studies, a new conceptual framework was developed. This study reveals influential factors shaping patient loyalty toward dental care providers in Bangkok, Thailand. **Results:** The research findings revealed the relationship between service quality and patient satisfaction, recognizing them as pivotal elements that underpin patient loyalty. **Conclusions:** This research provided invaluable insights for the management of Dental Care Providers. By enhancing comprehension of the intricate interplay between the antecedents of service quality and the reputation of dental care providers, this study empowers the implementation of more effective strategies. Ultimately, the findings contribute to the improvement of patient loyalty toward dental care providers.

Keywords: Service quality, Reputation, Patient satisfaction, Patient loyalty, Dental care provider

JEL Classification Code: D40, D50, I10, M30, M31

1. Introduction

As of 2020, an estimated 1,600 dental care providers, or 35% of the nationwide 4,566 dental care providers are

located in Bangkok (Boriello, 2020). The ratio of dentists to population therefore is around 1:5,000 compared to 1:16,000 in more rural areas of the country (Thanakanjanaphakdee et al., 2019). At the same time,

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patients have become more demanding and the expectations towards dental care providers have grown (Siripipatthanakul & Puttharak, 2021). With the dentist to population ratio expected to sink to 1:3,395 in 2025, further importance of patient loyalty creation will arise (*THAILAND MARKET SURVEY on Dental Equipment and Oral Care Products*, 2018).

Problem Statement:

In the bustling city of Bangkok, an estimated 1,600 dental care providers offer a spectrum of diagnostic services and treatment plans that exhibit notable comparability. This characteristic is further accentuated by the presence of visiting dental specialists, practicing across multiple dental care facilities on varying weekdays. As a consequence, patients are presented with near-equivalent service offerings across the spectrum, encompassing diagnostic imaging, preventive measures, restorative treatments, endodontic procedures, orthodontic interventions, as well as surgical operations and dental implant installations. This scenario underscores a market landscape marked by monopolistic competition, as identified by Nguyen-Le (2015).

Within this context, the distinctiveness of dental care services is primarily determined by factors such as service quality, reputation, and patient satisfaction, which dental care providers possess the agency to actively shape (Hornby, 2020; Woodward, 2020). The central concern addressed by this study is to discern the extent to which these factors influence patient loyalty. By identifying the specific impacts of these elements, this research endeavor aims to provide crucial insights into the mechanisms underpinning patient loyalty within this highly competitive dental care market.

Additionally, this study aims to bridge a critical research gap concerning the interplay between reputation and patient satisfaction. Despite their recognized significance in influencing patient loyalty, the intricate relationship between these factors remains less explored in the existing body of literature. This study, therefore, aspires to address this void by investigating the impact of reputation on patient satisfaction, contributing to a deeper understanding of the dynamics at play.

The culmination of these efforts carries practical implications for dental care providers seeking to retain their patient base and enhance business viability. By uncovering the factors that foster patient loyalty, providers can implement targeted strategies to curtail the risk of patient attrition to competitors. In doing so, this study's outcomes

offer a pathway toward sustaining and augmenting the operational and financial sustainability of dental care providers amidst a backdrop of intense market competition.

Research Objectives:

- 1) To determine the effect of service quality on patient satisfaction towards dental care providers.
- 2) To determine the effect of service quality on patient loyalty towards dental care providers.
- 3) To determine the effect of patient satisfaction on patient loyalty towards dental care providers.
- 4) To determine the effect of reputation on patient satisfaction towards dental care providers.

Significance of the Study:

The findings derived from this study hold the potential to significantly enhance our comprehension of the intricate determinants that shape patient loyalty within the realm of dentistry, specifically within the context of Bangkok, Thailand. By shedding light on these pivotal factors, this research offers a robust foundation upon which future investigations can build, facilitating a more comprehensive exploration of the subject matter.

Moreover, the outcomes of this study extend beyond academia and hold practical implications for dental care providers. Armed with a deeper understanding of the factors that influence patient loyalty, these providers can strategically tailor their service delivery approaches. This adaptive approach not only fosters positive patient experiences but also positions them at a competitive advantage within the dynamic market landscape.

Importantly, the insights gleaned from this study possess the capacity to inform and refine the marketing endeavours of dental care providers. Armed with a precise understanding of the factors influencing patient loyalty, these providers can optimally allocate their resources. This strategic resource allocation empowers targeted patient communication, spanning the stages preceding, during, and following the patient's visit. Consequently, this personalized approach holds the promise of fostering enhanced patient experiences and outcomes.

In essence, this study serves as a conduit for elevating patient loyalty in dentistry, facilitating a symbiotic relationship between research, practice, and patient care.

2. Literature Review

2.1 Service Quality and Patient Satisfaction

According to Eren (2020), it is necessary for healthcare providers to achieve service quality. This way, they can achieve patient satisfaction. This goal should be pursued

even though an increase in service quality comes at higher costs in the short term, as the impact of satisfied patients will be more valuable over time.

Aliman and Mohamad (2016) highlight the positive impact of service quality on patient satisfaction. According to their study, healthcare providers can derive strategies from this knowledge in order to improve the response to patient needs, thus increasing service quality and patient satisfaction in tandem.

In their study, Lin and Yin (2022) confirm the relationship between service quality and patient satisfaction in the context of dental clinics. They derive several dimensions for dental care providers to improve along, with appointment time and convenience being picked up by this study as well.

Wu (2011) recommends the planning and implementation of service strategies, as they lead to higher patient satisfaction, further proving the relationship between the two variables. In a study with 385 dental patients in Thailand, Siripipatthanakul and Nyen Vui (2021) also show the significant effect of service on patient satisfaction, using dentist and dental assistant related variables. The following hypothesis is proposed in light of these findings:

Hypothesis 1 (H1): There is no influence of service quality on patient satisfaction towards dental care providers.

2.2 Service Quality and Patient Loyalty

In a study in Pakistan, Fatima et al. (2018) show that service quality creates patient loyalty in the context of health care provision. They further underline the service quality dimensions of attentiveness, and modern facilities, both topics that are reflected in the study at hand.

Hashem and Ali (2019) conclude, that patient loyalty is to be explained with the quality of the services provided. A constant evaluation of the service quality in the dental field is recommended in order to adapt to changing patient expectations and needs.

Since healthcare services are dependent on patient numbers, it is advisable that dental care providers pay close attention to the patients' opinions on their quality, in order to maintain them as customers, thus linking service quality to patient loyalty (Siripipatthanakul, 2021).

The study by Sitio and Ali (2019) links service quality to patient loyalty in the sector of healthcare services and predicts that improvements in service quality will lead to increased patient loyalty.

Arab et al. (2012) underline the impact of service quality on patient loyalty by showing that improvements in service quality lead to an increase in patient loyalty. Following the preceding discussion, the following hypothesis is advanced:

Hypothesis 2 (H2): There is no influence of service quality on patient loyalty towards dental care providers.

2.3 Reputation and Patient Satisfaction

In their study in Turkey, Amarat et al. (2022) confirm the positive effect that reputation has on patient satisfaction. Furthermore, by conducting a study among healthcare services in Malaysia, Suki (2011) identifies that patient satisfaction is increased by a good reputation. Tan et al. (2019) define hospital brand image as the patients' amalgam of experiences with the healthcare provider, reflected in the chosen questions around reputation and ethical behaviour. For this reason, it is suitable to consider hospital brand image as substitute for the variable reputation. The researchers continue to establish that hospital brand image seems to strongly determine patient satisfaction.

Describing the variable brand image, Khodadad Hosseini and Behboudi (2017) argued that its core elements are being honest and fulfilling commitments, hence it is adequate to consider hospital brand image as a substitute for the variable reputation. The authors continue to establish that the variable has a significant effect on patient satisfaction.

Sibarani and Riani (2017) defined the variable brand image as encouraging to customers to prefer certain products over others. Therefore, the variable brand image will be considered as substitute for reputation. In their study, the researchers conclude that hospital image has a significant effect on patient satisfaction. Based on the preceding, the following hypothesis is proposed:

Hypothesis 3 (H3): There is no influence of patient satisfaction on patient loyalty towards dental care providers.

2.4 Patient Satisfaction and Patient Loyalty

Amin and Nasharuddin (2013) link patient satisfaction significantly to the intend to return to the healthcare provider, which can be interpreted as patient loyalty. Expanding on that finding, there is a direct relationship between patient satisfaction and patient loyalty, and working towards achieving patient satisfaction builds patient loyalty (Fatima et al., 2018).

Beyond that, in a study with a similar research goal, Siripipatthanakul and Nyen Vui (2021) underline the significant effect of patient satisfaction on patient loyalty in the context of dental care providers in Thailand. In a further study by Siripipatthanakul (2021) it is suggested that dental care providers should consider the effect of patient satisfaction on patient loyalty when allocating resources to meet patient needs.

Lastly, patient satisfaction with healthcare provider staff and facilities are among the most important elements that create patient loyalty (Sadeh, 2017). The following hypothesis is proposed in light of these findings:

Hypothesis 4 (H4): There is no influence of reputation on patient satisfaction towards dental care providers.

2.5 Conceptual Framework

Referring from four theoretical frameworks, which consist firstly of the effects of perceived service quality on patient satisfaction at a public hospital in Pahang, Malaysia, by Mohamed and Azizan (2013). Secondly, from dental practice-related factors and patient loyalty in dental clinics, Laem Chabang, Thailand: The mediating role of patient satisfaction by Siripipatthanakul and Nyen Vui (2021). Thirdly, the impacts of service quality, brand image, and perceived value on outpatient loyalty to China's private dental clinics with service satisfaction as a mediator by Lin and Yin (2022). Lastly, repurchase intention as a marketing strategy: a case study on dental clinics in Bandung City, Indonesia by Suprayogi et al. (2022). Then, the author constructed the conceptual framework for the analysis "Factors influencing patient loyalty towards dental care providers – residents in Bangkok, Thailand," shown in Figure 1.

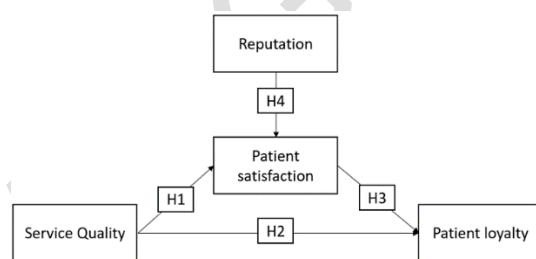


Figure 1: The research framework
Source: Authors

3. Research Methodology

The fundamental aim of this study is to discern the factors influencing patient loyalty toward dental care providers, with a specific focus on service quality, reputation, and patient satisfaction.

To achieve this objective, the researcher employed a combination of three non-probability sampling techniques. The primary approach utilized was the purposive sampling method. Subsequently, to ensure comprehensive representation and robust data collection, convenience sampling and snowball sampling methods were integrated into the research design. These non-probability sampling techniques were chosen due to the constraints imposed by time considerations, which are practical realities in this research context.

The sequence of sampling methods initiated with purposive sampling, facilitating the selection of participants aligned with the research's core objectives – individuals engaged with dental care providers. Building on this foundation, convenience sampling was incorporated into the methodology, capitalizing on the accessibility of participants to the researcher. This method proved particularly suitable for rapidly amassing a diverse dataset. Moreover, the inclusion of snowball sampling further enhanced the study's outreach within a condensed timeframe.

The research instrument, a meticulously crafted questionnaire, comprises three distinct segments, collectively comprising 27 questions. The initial segment features screening questions designed to ensure participant eligibility based on specific criteria: residency in Bangkok, an age of at least 20 years, and regular engagement with dental care providers. These screening questions, labeled (SC1), (SC2), and (SC3), respectively, filter participants in alignment with these criteria.

The subsequent section of the questionnaire is dedicated to queries aligned with the dependent, moderating, and independent variables, facilitating a comprehensive exploration of the factors under investigation. The final segment of the questionnaire focuses on capturing demographic information, thereby infusing the dataset with contextual insights.

This meticulous approach to data collection and questionnaire design guarantees the acquisition of targeted and pertinent information, poised for rigorous analysis and interpretation in pursuit of the study's overarching goals.

Given the quantitative research approach adopted in this study, three analytical tools will be deployed: descriptive statistics encompassing frequencies, percentages, means, and standard deviations; inferential statistics, particularly multiple linear regression, for hypothesis testing; and Cronbach's alpha for assessing the reliability of the research constructs.

The Item Objective Congruence (IOC) Index was used to screen each questions' item quality before constructing the questionnaire (Turner & Carlson, 2003). The IOC value returned at above 0.5 for each item indicates the appropriateness of all questions. Consequently, respondents may be provided with the questionnaire (Rovinelli & Hambleton, 1976). Moreover, according to Peter (2018), Cronbach's alpha is the preferred indicator in both measuring and testing the reliability of academic research. A value of 0.6 is regarded as the lowest acceptable value of Cronbach's alpha. Is this minimum achieved, the researcher can accept Cronbach's alpha as satisfactory (Taber, 2018).

After the pilot test and Cronbach's Alpha reliability assessment in the fourth week of January 2023, the survey was distributed throughout February 2023. Online surveys gathered primary data. To save time, 385 samples were collected online. The online poll eliminated researcher bias and allowed respondents to complete it conveniently. After collecting 385 responses, JAMOVI evaluated the data in the first week of March 2023. The data was interpreted using Cronbach's Alpha and multiple linear regression during the second and third weeks of March 2023.

As shown in Table 1, the aggregate variables influencing patient loyalty toward dental care providers among Bangkok, Thailand residents consisted of four variables. In Table 1, the pilot test with $n = 53$ respondents yielded values greater than 0.6 for all constructs, validating the questionnaire's internal consistency and making it suitable for use and distribution among the entire sample size. Their Cronbach's alpha is 0.852. Cronbach's alpha for the five items comprising the variable service quality (SQ) yielded a value of 0.790. Cronbach's alpha for the four items of the patient satisfaction (PS) variable yielded a value of 0.815. Cronbach's alpha for the four items of the variable reputation (R) returned a value of 0.820. Cronbach's alpha for the four items comprising the patient loyalty (PL) variable yielded a value of 0.823.

Table 1: Pilot Test $n = 53$ and IOC results with three experts

Variables	Cronbach's Alpha (>0.6)	IOC (>0.5)	
Service quality (SQ)	0.790	SQ1	0.670
		SQ2	1.000
		SQ3	1.000
		SQ4	1.000
		SQ5	1.000
Patient satisfaction (PS)	0.815	PS1	1.000
		PS2	1.000
		PS3	1.000
		PS4	1.000
Reputation (R)	0.820	R1	1.000
		R2	0.670
		R3	0.670
		R4	0.670
Patient loyalty (PL)	0.823	PL1	1.000
		PL2	1.000
		PL3	1.000
		PL4	1.000
	0.852		

Source: Authors

4. Results

4.1 Descriptive Analysis of Demographic data

Gender in table 2, gender was slightly unequally distributed between male and female with 56.1% male. In terms of *age*, the age cohort of 30 to 39 years old is the strongest at 36.6%, followed by the cohort of 20 to 29 years old at 27.0%. The age cohort of 40 to 49 years ranks 3rd at 23.6% and the cohort older than 49 years old is the smallest at 12.7%. *Marital status*, of the 385 respondents, 47.8% are single, 43.9% are married, 8.3% are divorced and 0.0% are widowed. Then, *education Level*, 84.4% have an academic degree with 53.2% having a Bachelor's, 27.3% a Master's and 3.9% a PhD Degree. The remaining 15.6% have lower than a Bachelor's Degree. Next, *occupation*, the majority of respondents are Private Employees at 43.9%, followed by Business Owners at 18.4%, then Students at 13.8% and Government Employees at 12.7%. The Unemployed account for 3.6% and 7.5% stated "Other". Focusing on *monthly income*, 29.1% of the 385 participants rank in the highest income bracket of THB 60,001 and above. The bracket of THB 30,001 to 45,000 is represented by 26.0%. 19.2% stated their income in the range of THB 15,001 to 30,000, followed by 15.6% in the bracket of less than THB 15,001. The group earning between THB 45,001 and 60,000

accounts for 10.1%. Lastly, *visit frequency*, 36.6% of the 385 participants visit dental care providers once every year. Followed by 30.9% who visit twice a year. 18.4% visit less than once a year, while 14.0% visit more than twice every year.

Table 2: Demographic data

Demographic data	Frequency	Percent
Gender		
Male	216	56.1
Female	169	43.9
Total	385	100
Age		
20 – 29 years old	104	27.0
30 – 39 years old	141	36.6
40 – 49 years old	91	23.6
Over 49 years old	49	12.7
Total	385	100
Marital Status		
Married	169	43.9
Single	184	47.8
Divorced	32	8.3
Widowed	0	0.0
Total	385	100
Education Level		
Lower than Bachelor's Degree	60	15.6
Bachelor's Degree	205	53.2
Master's Degree	105	27.3
Ph.D. Degree	15	3.9
Total	385	100
Occupation		
Student	53	13.8
Government Employee	49	12.7
Private Employee	169	43.9
Business Owners	71	18.4
Unemployed	14	3.6
Others	29	7.5
Total	385	100
Monthly income		
Less than 15,001 Baht	60	15.6
15,001 – 30,000 Baht	74	19.2
30,001 – 45,000 Baht	100	26.0
45,001 – 60,000 Baht	39	10.1
More than 60,001 Baht	112	29.1
Total	385	100
Visit frequency to dental care providers		
Less than once every year	71	18.4
Once every year	141	36.6
Twice every year	119	30.9
More than twice every year	54	14.0
Total	385	100

Source: Authors

4.2 Descriptive analysis with mean and standard deviation

From table 3, the highest mean of service quality (SQ) was “Dental treatments are provided in a timely manner and

appointments are made at for me convenient times” which equals to 4.41. Whereas “All staff at my dental care provider are attentive to my needs as a dental patient” has the lowest mean, which equals to 4.19. “All staff at my dental care provider are attentive to my needs as a dental patient” showed the highest standard deviation at 0.822, while the lowest was “My expectations and needs towards my dental treatment are considered and met completely by my dental care provider” which equals to 0.724.

From table 3, the highest mean of patient satisfaction was “During treatment, the dental assistant reacts quickly to my needs as a patient” which equals to 4.27 whereas “The dentist is committed to being on time for my appointment” displayed the lowest mean at 4.23. At 0.822 “The dentist is committed to being on time for my appointment” showed the highest standard deviation, while the lowest was “During treatment, the dental assistant reacts quickly to my needs as a patient” at 0.775.

From table 3, the highest mean of reputation was “My dental care provider has a good reputation and is highly regarded by me” which equals to 4.27. On the other hand, the lowest mean was “In social media, my dental care provider is perceived to have a high reputation” which equals to 3.98. The item “In social media, my dental care provider is perceived to have a high reputation” showed the highest standard deviation at 0.952, while the lowest was “My dental care provider has a good reputation and is highly regarded by me” which equals to 0.778.

As per table 3, the item “I will visit my dental care provider for future treatments” exhibited the highest mean among the patient loyalty items at 4.32. Whereas “I share my positive experience with my dental care provider with others” displayed the lowest mean at 4.10. At 0.898 “I share my positive experience with my dental care provider with others” showed the highest standard deviation, while the lowest was “I will visit my dental care provider for future treatments” which equals to 0.806.

Table 3: Mean and standard deviation of each variable

Service quality (SQ)	Mean	S.D.
SQ1: My dental care provider has modern equipment.	4.26	0.816
SQ2: My expectations and needs towards my dental treatment are considered and met completely by my dental care provider.	4.39	0.724
SQ3: Dental treatments are provided in a timely manner and appointments are made at for me convenient times.	4.41*	0.780
SQ4: My dental care provider has sufficient skills. They are good at their work.	4.34	0.744
SQ5: All staff at my dental care provider are attentive to my needs as a dental patient.	4.19	0.822
Patient Satisfaction (PS)	Mean	S.D.
PS1: The dentist is committed to being on time for my appointment.	4.23	0.822
PS2: Before the treatment, the dentist provides me with clear explanations.	4.25	0.783

Service quality (SQ)	Mean	S.D.
PS3: During treatment, the dental assistant reacts quickly to my needs as a patient.	4.27*	0.775
PS4: I am satisfied with the overall service provided by my dental care provider.	4.24	0.801
Reputation (R)	Mean	S.D.
R1: My dental care provider has a good reputation and is highly regarded by me.	4.27*	0.778
R2: The fact that ethical values are in the center of my dental care providers' practice, increases their reputation.	4.17	0.884
R3: In social media, my dental care provider is perceived to have a high reputation.	3.98	0.952
R4: My dental care provider has a reputation for being honest with patients.	4.17	0.817
Patient Loyalty (PL)	Mean	S.D.
PL1: As my first choice I consider my current dental care provider.	4.22	0.850
PL2: I advocate my dental care provider to relatives and friends.	4.20	0.868
PL3: I share my positive experience with my dental care provider with others.	4.10	0.898
PL4: I will visit my dental care provider for future treatments.	4.32*	0.806

Note: * indicates highest mean; n = 385

Source: Authors

4.3 Hypothesis Testing Results

4.3.1 Results of Multiple Linear Regression of H₁, H₄

Table 4 shows the summary of multiple linear regression analysis for hypotheses 1 and 2. The multiple linear regression was performed to determine if service quality (SQ) and reputation (R) significantly affected patient satisfaction. VIF is less than 5, meaning all independent variables for hypothesis 1 and 2 are not overlapping and there is no problem with the multicollinearity. 1.720 is the VIF value of viral marketing and service quality. R-square is 0.580 at 95% of confidence level. R-square of 0.580 means that approximately 58.0% of the independent variables (service quality and reputation) can justify dependent variables (patient satisfaction). Results show that 58.0% of the variance in patient satisfaction can be accounted for by two predictors, collectively $F = 263$, $p < .05$. By looking at the individual contributions of each predictor, the result shows that service quality ($\beta = .577$, $p < .05$) and reputation ($\beta = .248$, $p < .05$) are positively significant to patient satisfaction as shown in Figure 2.

Hypothesis 1

H1₀: Service quality has no statistically significant influence on patient satisfaction towards dental care providers.

H1_a: Service quality has statistically significant influence on patient satisfaction towards dental care providers.

Table 4 shows the significant level was at .001, below the threshold of 0.05, leading to the rejection of the null hypothesis. Consequently, the conclusion is that patient satisfaction has been affected by service quality. Moreover, service quality has an unstandardized beta of .615. This implies, an increase in service quality by 1% leads to patient satisfaction being raised by 61.5%.

Hypothesis 4

H4₀: Reputation has no statistically significant influence on patient satisfaction towards dental care providers.

H4_a: Reputation has statistically significant influence on patient satisfaction towards dental care providers.

Table 4 shows the significant level was at .001, below the threshold of 0.05, leading to the rejection of the null hypothesis. Consequently, the conclusion is that patient satisfaction has been affected by reputation. Besides, reputation is the weak variable that has an influence on patient satisfaction as its unstandardized beta was the lowest with the value of .235. This implies, an increase in reputation by 1% leads to patient satisfaction being raised by 23.5%.

Table 4: Multiple linear regression analysis for hypothesis 1 and 4

Variables	B	SE B	β	t (>1.96)	p	VIF
H1: SQ $\rightarrow$ PS	.615	.046	.577	13.26	.001*	1.720
H4: R $\rightarrow$ PS	.235	.041	.248	5.71	.001*	1.720
F	263					

Note: $R^2 = .580$, Adjusted $R^2 = .577$, * $p < .05$. Dependent Variable = Patient satisfaction (PS)

Source: Authors

4.3.2 Results of Multiple Linear Regression of H₂, H₃

Table 5 shows the summary of multiple linear regression analysis for hypotheses 2 and 3. The multiple linear regression was performed to determine if service quality (SQ) and patient satisfaction (PS) significantly affected patient loyalty. VIF is less than 5, meaning all independent variables for hypothesis 2 and 3 are not overlapping and there is no problem with the multicollinearity. 2.190 is the VIF value of service quality and patient satisfaction and R-square is 0.548 at 95% of confidence level. R-square of 0.548 means that approximately 54.8% of the independent variables (service quality and patient satisfaction) can justify dependent variables (patient loyalty). Results show that 54.8% of the variance in patient loyalty can be accounted for by two predictors, collectively $F = 232$, $p < .05$. By looking at the individual contributions of each predictor, the result

shows that service quality ($\beta = .402$, $p < .05$) and patient satisfaction ($\beta = .392$, $p < .05$) are positively significant to patient loyalty as shown in Figure 2.

Hypothesis 2

H2_o: Service quality has no statistically significant influence on patient loyalty towards dental care providers.

H2_a: Service quality has statistically significant influence on patient loyalty towards dental care providers.

Table 5 shows the significant level was at .001, below the threshold of 0.05, leading to the rejection of the null hypothesis. Consequently, the conclusion is that patient loyalty has been affected by service quality, and it can be concluded that service quality has a significant influence on patient loyalty. Besides, the service quality is the strong variable that has an influence on patient loyalty as its unstandardized beta was the highest with the value of .474. This implies, an increase in service quality by 1% leads to patient loyalty being raised by 47.4%.

Hypothesis 3

H3_o: Patient satisfaction has no statistically significant influence on patient loyalty towards dental care providers.

H3_a: Patient satisfaction has statistically significant influence on patient loyalty towards dental care providers.

Table 5 shows the significant level was at .001, below the threshold of 0.05, leading to the rejection of the null hypothesis. Consequently, the conclusion is that patient loyalty has been affected by patient satisfaction. Moreover, patient satisfaction has an unstandardized beta of .434. It can be implied that if patient satisfaction increases by 1%, the patient loyalty can be raised by 43.4%.

Table 5: Multiple linear regression analysis for hypothesis 2 and 3

Variables	B	SE B	β	t (>1.96)	p	VIF
H2: SQ $\rightarrow$ PL	.474	.060	.402	7.89	.001*	2.19
H3: PS $\rightarrow$ PL	.434	.056	.392	7.71	.001*	2.19
F	232					

Note: $R^2 = .548$, Adjusted $R^2 = .546$, * $p < .05$. Dependent Variable = Patient loyalty (PL)

Source: Authors

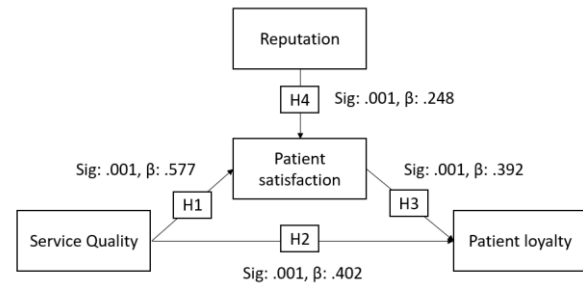


Figure 2: Results of the research model

Source: Authors

5. Summary and Discussion

5.1 Summary of Findings

Guiding the research were the questions: Does service quality have a significant effect on patient satisfaction towards dental care providers? Does service quality have a significant effect on patient loyalty towards dental care providers? Does patient satisfaction have a significant effect on patient loyalty towards dental care providers? Does reputation have a significant effect on patient satisfaction towards dental care providers?

The study focused on patient satisfaction and patient loyalty among the target population that lives in Bangkok, is at least 20 years of age and visits dental care providers. Using the simple random sampling technique, a sample of 385 people was selected and all of the respondents' questionnaires were evaluated.

In order to ensure reliability and consistency, close-ended questions were used in the creation of the questionnaire. After converting the collected results into raw data, an analysis was conducted using the JAMOV tool. With the help of figures and tables these data have been made readily accessible. Using descriptive statistics, the analysis of means, standard deviations and frequencies was conducted.

The hypotheses have been tested using multiple linear regression. The first multiple linear regression analysis is used to determine the level of impact of service quality and reputation on patient satisfaction. In a second multiple linear regression analysis, service quality and patient satisfaction are investigated on their impact on patient loyalty. The summary of the results is shown in table 6 below.

Table 6: Summary of hypotheses testing

Hypotheses	p	Standardized Coefficient	Decision
H1o: Service quality has no statistically significant influence on patient satisfaction towards dental care providers.	.001*	.577	supported
H2o: Service quality has no statistically significant influence on patient loyalty towards dental care providers.	.001*	.402	supported
H3o: Patient satisfaction has no statistically significant influence on patient loyalty towards dental care providers.	.001*	.392	supported
H4o: Reputation has no statistically significant influence on patient satisfaction towards dental care providers.	.001*	.248	supported

Note: *p < .05

5.2 Discussion

5.2.1 Service Quality and Patient Satisfaction

Regarding the research question, “Does service quality significantly affect patient satisfaction towards dental care providers?”

The finding in this study revealed that service quality had a highly significant effect on patient satisfaction. This implies that dental care providers’ service quality contributes to and affects patient satisfaction significantly.

This result is in line with the study by Mohamed and Azizan (2013), who confirmed the cause-and-effect relationship between service quality and patient satisfaction in their study. Moreover, it aligns with the research results of Aliman and Mohamed (2016) study and Creignou and Nuangjamnong's (2022) study, supporting the significant influence of service quality on satisfaction.

An in-depth observation of the descriptive analysis of the five questions around service quality, collected via the questionnaire, the statistical data shows the statement “All staff at my dental care provider are attentive to my needs as a dental patient.” has the lowest mean at 4.19. Moreover, this question also has the highest standard deviation at .822, meaning the respondents’ replies are spread out. Dental care providers are encouraged to ensure that all staff in the facility attends to patients’ needs.

5.2.2 Service Quality and Patient Loyalty

Regarding the research question, “Does service quality significantly affect patient loyalty toward dental care providers?”

The finding in this study revealed that service quality had a highly significant effect on patient loyalty. The significant value of service quality and patient loyalty is .001. The implication is that dental care providers’ service quality contributes to and affects patient loyalty significantly.

The findings of this study align with previous results by Fatima et al. (2018), who confirmed the cause-and-effect relationship between service quality and patient loyalty in their research. Furthermore, the results align with Siripipatthanakul and Nyen Vui (2021) findings that the service's quality is important in creating patient loyalty.

An in-depth observation of the descriptive analysis of the five questions around service quality, collected via the questionnaire, the statistical data shows the statement “All staff at my dental care provider are attentive to my needs as a dental patient.” has the lowest mean at 4.19. Moreover, this question also has the highest standard deviation at .822, meaning the respondents’ replies are spread out. As suggested in the previous section, dental care providers are encouraged to ensure that all staff in the facility attends to patients’ needs.

5.2.3 Patient Satisfaction and Patient Loyalty

Regarding the research question, “Does patient satisfaction have a significant effect on patient loyalty towards dental care providers?”

The finding in this study revealed that patient satisfaction had a highly significant effect on patient loyalty. The significant value of patient satisfaction and patient loyalty is .001. This implies that the ability of dental care providers to maintain and increase patient satisfaction is the key to increase patient loyalty. Patient satisfaction contributes to and affects patient loyalty significantly.

The outcome of this study is aligned with findings by Lin and Yin (2022) who confirmed the cause-and-effect relationship between patient satisfaction and patient loyalty in their study. Patients that are satisfied with the provided service have a high probability to display loyalty (Amin & Nasharuddin, 2013).

The descriptive analysis of the statistical data of the four questions around patient satisfaction shows the statement “I am satisfied with the overall service provided by my dental

care provider.” has the lowest mean at 4.24. The highest standard deviation is attributed to “*The dentist is committed to being on time for my appointment.*” at .822, meaning the respondents’ replies are spread out. Dental care providers would create more patient loyalty if they would regularly check for overall patient satisfaction and would improve dentist’s punctuality for appointments.

5.2.4 Reputation and Patient Satisfaction

Regarding the research question, “*Does reputation have a significant effect on patient satisfaction towards dental care providers?*”

The finding in this study revealed that reputation had a highly significant effect on patient satisfaction. The significant value of reputation and patient satisfaction is .001. This implies that the ability of dental care providers to maintain and increase their reputation is the key to increase patient satisfaction. Reputation contributes to and affects patient satisfaction significantly.

This study agreed with Amarat et al. (2022) who stated that if reputation is high, it will create patient satisfaction. Moreover, the result of this study is in concurrence with a study from Suprayogi et al. (2022) who confirmed the cause-and-effect relationship between reputation and patient satisfaction in their study, in the context of dental clinics.

In an in-depth observation of the descriptive analysis of the four questions around reputation, collected via the questionnaire, shows the statement “*In social media, my dental care provider is perceived to have a high reputation.*” having the lowest mean at 3.98. Moreover, this question has the highest standard deviation at .952. Based on this, dental care providers are encouraged to take care of their reputation as perceived on social media as high reputation levels there will result in increased patient satisfaction.

6. Conclusion and Recommendations

Referring to the findings based on patient satisfaction, service quality is first ranked, followed by reputation factor, which are the important factors in this study. Therefore, it is recommended that dental care providers in Bangkok regularly measure the levels of patient satisfaction among their patients. This can be done with a post-treatment feedback questionnaire, covering items related to patient satisfaction, as proposed by this study. As high patient satisfaction positively predicts patient loyalty, achieving

high scores on the feedback will be a good indicator of how much patient loyalty the dental care provider is creating. Additionally, this will also allow to measure changes over time, and decide on corrective measures. As a first step, dental care providers are encouraged to make sure that patient’s needs are attended to by all staff in the facility. This item showed the lowest mean and is thus a good starting point to begin improving patient satisfaction. Beyond that, dental care providers should make sure that their dentists begin the treatment on time. The study has shown that this item ranked with the lowest mean and hence is also a topic that should be addressed early on.

With the findings based on patient loyalty, service quality is also first ranked followed by patient satisfaction. The study results also suggest that dental care providers in Bangkok work towards improving their reputation on social media, since currently some patients perceive it as rather low. Since reputation positively affects patient satisfaction, and patient satisfaction positively predicts patient loyalty, efforts in that area are justified for dental care providers that want to increase their differentiation from competing providers, and strengthen business viability, thus reducing the risk of patients switching to another dental care provider.

Lastly, survey participants seem hesitant to share their positive experiences with others, judging by the lowest item mean in the category patient loyalty. Dental care providers may use this information to create patient referral or patient bonus systems, linked to sharing positive experiences with others. Therefore, dental care providers might want to encourage sharing of videos, pictures, and comments on social media.

7. Limitations and Further Studies

Several limitations - warrant consideration. Primarily, the study’s focus exclusively on Bangkok residents restricts its generalizability, as it overlooks data from residents of other urban centers or rural areas within Thailand. Secondly, the research exclusively targets participants who visit dentists, without discerning variations in the frequency of their visits. Lastly, it is important to acknowledge that the utilization of non-probability sampling methods could introduce bias into the findings.

Future studies - aiming to deepen insights into the impact of service quality on patient satisfaction and loyalty could potentially delve into a more intricate analysis by dissecting

the variable of service quality across the dimensions of SERVQUAL. This finer-grained examination could involve exploring additional aspects of reliability, assurance, tangibles, empathy, and responsiveness. Furthermore, extending the geographical purview of this research is a promising avenue for future investigation. By comparing outcomes from Bangkok to other metropolis areas within Southeast Asia, valuable insights into regional distinctions and parallels concerning patient loyalty to dental care providers could be unveiled. Moreover, expanding the study beyond Asia, with a cross-cultural examination, would illuminate how patient behavior toward dental care providers is influenced by cultural factors. Lastly, a worthwhile avenue for further research involves differentiating between public and private dental care providers within Bangkok. Such differentiation could elucidate disparities in patient perceptions and behaviors based on the nature of dental care provision – whether public or private.

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