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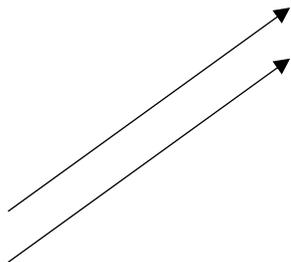
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## Determinants of patient loyalty in private hospitals: Evidence from greater Jakarta



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### ABSTRACT

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#### Keywords

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This study investigates the development of patient loyalty by applying the four stages of the loyalty model within the context of Indonesia, a developing country. It examines the influence of service quality on patient satisfaction, as well as the subsequent impact of satisfaction on trust, commitment, and behavioral intention. Additionally, the study explores the mediating roles of trust and commitment in shaping patients' behavioral intentions toward loyalty. Data were collected through an online questionnaire using purposive sampling from 212 individuals who had been hospitalized for at least two days and subsequently discharged. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 4 software. The results indicate that both the physical environment and personnel quality significantly and positively affect patient satisfaction. In contrast, the technical quality dimension failed to meet validity and reliability standards due to its conceptual overlap with the other two dimensions. Patient satisfaction was found to significantly enhance both trust and commitment, which, in turn, positively mediate the relationship between satisfaction and behavioral intention. This study contributes to the advancement of loyalty theory within healthcare services, particularly in the context of developing countries like Indonesia. It also offers empirical insights from Greater Jakarta, identifying key factors that influence patient loyalty in private hospitals. These findings not only extend existing loyalty models but also provide practical guidance for hospital management and policymakers seeking to improve patient retention in urban healthcare environments.

**Contribution/ Originality:** This study is one of the few investigations into patient loyalty within the private healthcare sector in a rapidly urbanizing area such as Greater Jakarta, considering both tangible and intangible service aspects. The evidence documented indicates that improving interpersonal communication and hospital reputation are essential for fostering long-term patient loyalty in competitive urban healthcare markets.

## 1. INTRODUCTION

The development of information technology has changed the way people access information, especially in the healthcare service context in a developing country, which is considered unfavorable (Talib, Asjad, Attri, Siddiquee, & Khan, 2019). A group of patients begins to recognize the importance of health and the necessary treatments. Consequently, the healthcare service system in developing countries is continuously evolving to meet patient needs,

ensuring its relevance and sustainability (Sindhvani et al., 2022). In responses, healthcare providers need to establish a special bond with patients in order to achieve a competitive advantage (Chang, Tseng, & Woodside, 2013; Deniz & Yüksel, 2018).

Healthcare providers also need to learn about consumer behavior and buying decisions, which aim to improve patient satisfaction and generate more profits in the end.

The topic of consumer behavior and factors that support the formation of consumer perception has received increasing popularity and interest, especially in the healthcare service context (Debata, Patnaik, Mahapatra, & Sree, 2015). This occurs due to healthcare providers' increased awareness of maintaining their patients. They believe that if a patient's behavioral intention aligns with the company's goals, it will result in repurchasing and even recommending to others.

Therefore, this study aims to analyze the factors that can impact patients' behavioral intentions. The four-stages loyalty model developed by Oliver (1997) was used as a theoretical basis in this study.

To understand the behavior of loyalty, experts often refer to the satisfaction factor. This is aligned with many marketing studies which claim a strong connection between satisfaction and loyalty. However, even if satisfaction and loyalty have a strong relationship, trust and commitment also play a significant role in this context. This occurs due to the gap in the asymmetric relationship between satisfaction and loyalty, in which a loyal patient will be satisfied, but a satisfied patient does not necessarily become loyal. This requires further investigation, especially amid ongoing changes in the Indonesian healthcare system. These changes demand healthcare providers to continuously grow according to patients' expectations of healthcare service success in Indonesia.

There is more to the existing research around patient loyalty, and additional variables can be studied to help us better understand its development. Most notably, relational marketing is a marketing orientation that focuses on the retention of existing patients, as opposed to seeking new patients. It attempts to create meaning for an experience, create emotional connections for the patient, and create value that joins them to the practice to foster an emotional connection (Karaman, 2018).

In addition, value has been identified as an important factor in assessing patients' decision-making process. Value is the utilitarian trade-off between the perceived benefits it garners and the costs incurred while interacting with the service, and it concerns the level of fairness, individual preferences, and how the patients' experience lived up to their expectations (Bolton & Lemon, 1999; Padma, Rajendran, & Sai Lokachari, 2010).

Moreover, emotional attachment is considered important for increasing the bond between patient satisfaction and loyalty because long-term relationships will extend beyond satisfaction (Unal & Aydm, 2013). In our current marketing world, the ability to develop strong emotional ties has become a major differentiating aspect among healthcare providers.

Finally, relationship quality is an important Relationship quality includes trust, commitment, and future expectations of the provider's performance (He, Hu, Swanson, Su, & Chen, 2018; Kim, Han, & Lee, 2001). These four variables offer opportunities for future research, especially in a healthcare service context that is complex, dynamic, and dependent upon sustainable competitive advantage.

A lot of studies have researched outpatient services; however, research focusing on inpatients is still very limited. The development of healthcare systems in developing countries, such as Indonesia, requires further investigation into satisfaction and loyalty. Public hospitals generally focus on the quantity of services provided to reach a broader population. In contrast, private hospitals are considered more suitable for this study because they focus more deeply on service quality. Therefore, this study examines the stages of loyalty development among inpatients in private hospitals. The aim is to provide a comprehensive perspective on the formation of loyal behavior in the healthcare service context.

This study focuses on Java Island, specifically the Greater Jakarta Area, covering Jakarta, Bogor, Depok, Tangerang, and Bekasi, as this region represents the center of population concentration and economic activities, and also demonstrates relatively higher levels of urbanization and access to healthcare services compared to other regions in Indonesia (Central Statistics Agency, 2023). This focus was selected to ensure data accessibility, efficient information collection, and the representativeness of the private healthcare service context in areas with high service demand.

Many studies have examined the relationship among quality, satisfaction, and loyalty in depth. However, the roles of trust and commitment need further investigation in the healthcare service context, especially concerning their connection to customer behavioral intentions to revisit and recommend to others. This study aims to address this gap by focusing on satisfaction, trust, and commitment, which represent the affective and cognitive stages and serve as mediating variables toward patient loyalty.

This study also adopts the service quality dimensions proposed by George and Sahadevan (2024) which consist of physical environment, personnel quality, and technical quality. These three dimensions are considered more suitable for examining service quality in the healthcare service context, as they explain the physical, human, and outcome-related aspects.

Despite their relevance, studies that specifically investigate these dimensions remain limited. Therefore, this study attempted to re-examine the connection between service quality and satisfaction in the healthcare service context by using these three dimensions.

Accordingly, this study was meant to examine the loyalty model consisting of four stages, in which the dimensions of service quality (physical environment, personnel quality, and technical quality) represent the cognitive stage, while trust and commitment are positioned at the conative stage. Furthermore, this research aimed to assist healthcare service managers and marketers in making informed decisions regarding the enhancement of service quality, patient satisfaction, positive behavioral intention, along with the development of trust and commitment.

This study is conceptually grounded in the four stage of loyalty model by Oliver (1997) which explains that loyalty is not formed instantly but rather progresses through a series of cognitive, emotional, and behavioral stages resulting from repeated interactions and evaluations between consumers and service providers. The model as shown in Figure 1, is composed of four stages: cognitive, affective, conative, and action.

In the healthcare service context, these stages are represented by variables that reflect patients' psychological and behavioral processes. The cognitive stage is represented by service quality, the affective stage by patient satisfaction, the conative stage by trust and commitment, and the action stage by behavioral intention.

Service quality refers to the evaluation of patients in healthcare service by comparing between expectations and actual experiences. Parasuraman, Zeithaml, and Berry (1985) and Parasuraman, Zeithaml, and Berry (1988) defined service quality as the discrepancy between customer expectations and their perceptions of service performance. George and Sahadevan (2024) proposed a three-dimensional model for healthcare services, consisting of physical environment, personnel quality, and technical quality each capturing key elements of physical, humane, and outcomes aspects. In this study, service quality is defined as the patient's perceived assessment of healthcare services based on those three critical dimensions.

P a t i e n t s a t i s f a c t i o n i s d e f i n e d a s a s u b j e c t i v e e x p e c t a t i o n s a n d t h e i r p e r c e p t i o n s o f t h e s e r v i c e r e c e i v e d . W h e n t h e p e r c e i v e d s e r v i c e p e r f o r m a n c e m e e t s o r e x c e e d s e x p e c t a t i o n s , s a t i s f a c t i o n o c c u r s ( K i d a k & A k s a r a y l i , 2 0 0 8 ) . S a t i s f a c t i o n a l s o d e t e r m i n e d b y p r o d u c t p e r f o r m a n c e ( T u n j u n g s a r i & L u n a r d y , 2 0 1 6 ) . B o u d r e a u x , M a n d r y , a n d W o o d ( 2 0 0 3 ) e m p h a z i z e d t h a t s a t i s f a c t i o n i s a l s o i n f l u e n c e d b y s o c i a l , s t r u c t u r a l , a n d e x p e r i e n t i a l e l e m e n t s t h a t m a y l i e o u t s i d e t h e i m m e d i a t e s e r v i c e d e l i v e r y p r o c e s s . T h u s , p a t i e n t s a t i s f a c t i o n i n t h i s s t u d y r e f e r s t o t h e s u b j e c t i v e o u t c o m e r e s u l t i n g f r o m t h e p a t i e n t ' s a p p r a i s a l o f s e r v i c e q u a l i t y i n r e l a t i o n t o t h e i r e x p e c t a t i o n s .

Trust is defined as patients' willingness to rely on the competence of healthcare providers to perform their responsibilities effectively. According to Chaudhuri and Holbrook (2001) trust involves a readiness to rely on a service provider's ability and integrity. In the healthcare service context, in which service outcomes are often intangible and difficult to evaluate, trust becomes especially crucial (Chang et al., 2013; Moliner, 2009). Therefore, in this study, trust reflects the patient's confidence in the healthcare provider, evidenced by their willingness to entrust valuable personal resources such as time, information, and health-related decisions.

Commitment refers to the patient's relationship with healthcare service to a provider. Moorman, Zaltman, and Deshpande (1992) mentioned commitment as the desire to sustain a valued relationship, while Morgan and Hunt (1994) framed it as a mutual willingness to invest in a continued partnership. In this study, commitment is operationalized as the relationship based on value, trust, and reliability.

Behavioral intention encompasses actions that reflect patient loyalty, such as revisit intention, service-usage continuance, or recommendation to others. Budiarto (2019) characterized loyalty as a sustained pattern of service used, which manifests through repurchase or revisit behavior and positive word-of-mouth (Tunjungsari, Willyanto, Hoo, & Wolor, 2025). Behavioral intention in this study is defined as the intention of a patient to exhibit loyalty through revisits, reuse, and referrals to others.

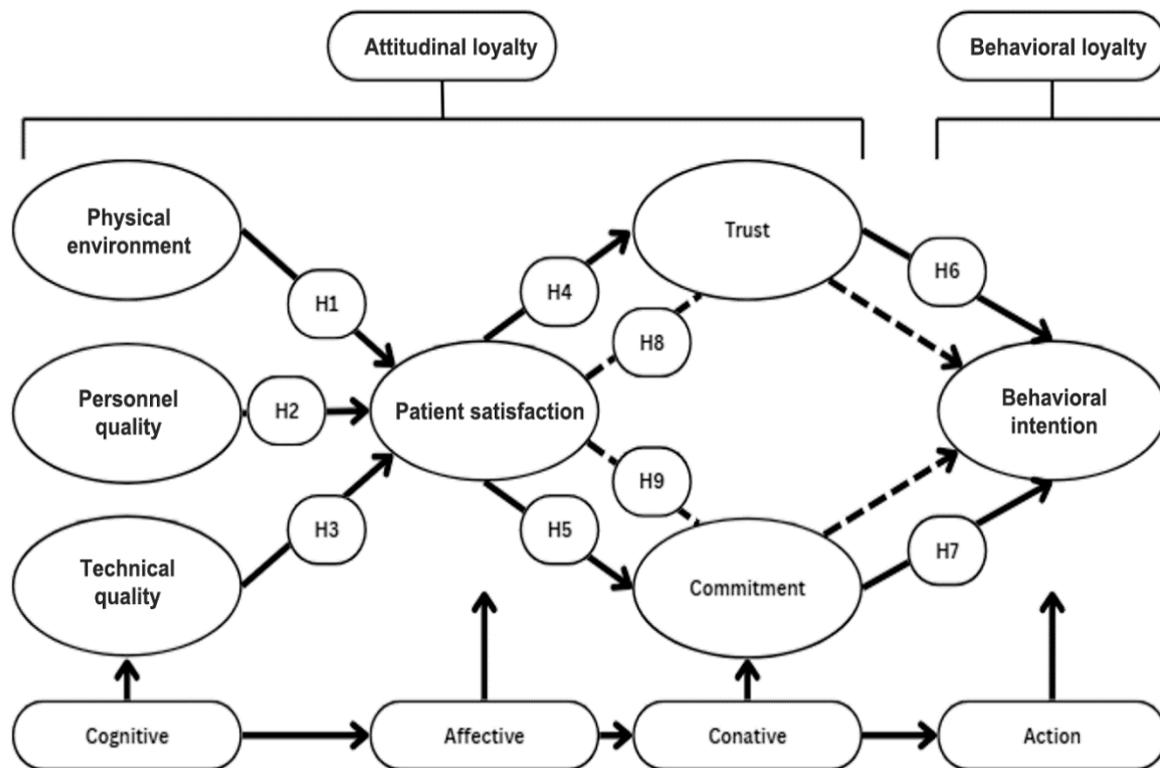


Figure 1. Conceptual model.

In healthcare services, the physical environment (pleasant, comfortable, and healing-supportive setting) contributes to a more positive service experience. Ilik, Eri en, and Fidan (2016) emphasized that hospital cleanliness is essential for hospital success, while Yasar (2016) found that untidy or poorly maintained rooms reduce patient satisfaction. Thus, the first hypothesis can be developed as follows:

*H<sub>1</sub>: Physical environment has a significant impact on patient satisfaction.*

Personnel quality reflects patients' perceptions of service quality and interpersonal behavior. Positive interactions with doctors and nurses can enhance the perceived quality of care.

Bayın and Önder (2013) highlighted the importance of friendly and responsive medical personnel, while Yasar (2016) noted that disrespectful or uninformative staff lead to dissatisfaction. Thus, the second hypothesis can be developed as follows:

*H<sub>2</sub>: Personnel quality has a significant impact on patient satisfaction.*

Technical quality represents the perceived competence and effectiveness of medical treatment. Hospitals that deliver accurate diagnoses and appropriate treatments. As Nunkoo, Teeroovengadum, Ringle, and Sunnassee (2020) and Ramli (2019) noted, the adequacy of pre- and post-treatment services strongly influences patient satisfaction. Thus, the third hypothesis can be developed as follows:

*H<sub>3</sub>: Technical quality has a significant impact on patient satisfaction.*

Satisfaction leads to trust when patients perceive that their experiences consistently meet or exceed expectations. Prior studies confirm a positive link between satisfaction and trust (Kandemir & İlik, 2017; Shabbir, Malik, & Malik, 2016). According to Bayın and Önder (2013), positive hospital experience belief in the provider's competence follows. Thus, the fourth hypothesis can be developed as follows:

*H<sub>4</sub>: Patient satisfaction has a significant impact on trust.*

Commitment arises when patients feel emotionally attached and believe in the long-term value of maintaining the relationship. Çetintürk (2016) and Moliner (2009) emphasized that satisfaction is a precursor to commitment. Thus, the fifth hypothesis can be developed as follows:

*H<sub>5</sub>: Patient satisfaction has a significant impact on commitment.*

Trust is a crucial driver of loyalty behaviors, including revisit intention and recommendation. Studies by Krishnan, Geyskens, and Steenkamp (2016); Sumaedi et al. (2014) and Reichheld and Scheffer (2000) support this relationship. Thus, the sixth hypothesis can be developed as follows:

*H<sub>6</sub>: Trust has a significant impact on behavioral intention.*

Commitment reflects a psychological attachment that influences long-term behavioral decisions. Narteh, Agbemabiese, Kodua, and Braimah (2013) and Roberts-Lombard, Pieterse, and Gabriel (2024) identified commitment as a core determinant of loyalty. Thus, the seventh hypothesis can be developed as follows:

*H<sub>7</sub>: Commitment has a significant impact on behavioral intention.*

Trust acts as a mediator in the relationship between satisfaction and loyalty intention by translating positive evaluations into confident behavior. Several studies Chen and Phou (2013); Castañeda (2011) and Shin, Chung, Oh, and Lee (2013) support this mediating role. Thus, the eighth hypothesis can be developed as follows:

*H<sub>8</sub>: Trust positively mediates the relationship between patient satisfaction and behavioral intention.*

Commitment also serves as a mediator between satisfaction and behavioral intention. Research by Fatima, Mascio, Quazi, and Johns (2020); Khraiwish, Al-Gasawneh, Joudeh, and Nusairat (2022) and Kungumapriya and Malarmathi (2018) found that satisfied patients are more likely to develop commitment, which leads to stronger loyalty intentions. Thus, the ninth hypothesis can be developed as follows:

*H<sub>9</sub>: Commitment positively mediates the relationship between patient satisfaction and behavioral intention.*

This study offers significant theoretical and empirical contributions to the understanding of patient loyalty in the healthcare service context, particularly within developing countries like Indonesia. By applying the four stages of loyalty model, the research extends existing loyalty theories and provides a nuanced view of how patient satisfaction, trust, and commitment interact to influence behavioral intention. The findings confirm that physical environment and personnel quality significantly enhance patient satisfaction, while trust and commitment serve as key mediators in the formation of loyal behavioral intentions. Furthermore, the study introduces empirical evidence from Greater Jakarta, offering localized insights into patient behavior in urban private hospital settings.

Methodologically, this research employs Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4, demonstrating the applicability of advanced analytical tools in healthcare service research. From a managerial perspective, the study highlights the importance of non-technical service dimensions such as

environment and staff interactions in shaping patient satisfaction and long-term loyalty. These findings provide practical guidance for hospital administrators seeking to improve patient retention and relationship management strategies. Additionally, the results have implications for healthcare policymakers in developing urban regions, as they underscore the value of service quality and trust-building efforts in achieving sustainable patient loyalty.

## 2. RESEARCH METHOD

This study applied a descriptive, quantitative approach to examine the relationships between variables in a healthcare service context, guided by hypothesis testing. The theoretical foundation is based on the Four-Stage Loyalty Model proposed by [Oliver \(1997\)](#) which conceptualizes loyalty as a progressive process through cognitive, affective, conative, and action stages. Each stage is represented by suitable constructs made to the healthcare context.

Data was collected via a structured questionnaire of loyalty-related constructs. This study applied Structural Equation Modeling (SEM) - Partial Least Squares (PLS) for data analysis purposes. SEM-PLS was used in this study because it has good suitability for complex models involving latent variables and mediation effects.

### 2.1. Research Population and Sample

This study's population consists of former inpatient on Island. To ensure relevance to the healthcare service context and construct validity, respondents were filtered to those who had been hospitalized for a minimum of two days. Hence, the sampling method used was purposive sampling, which is a non-probability technique that selects participants who meet certain criteria to participate.

The target sample size was determined according to the guidelines from [Alreck and Settle \(1995\)](#), which recommend between 200 and 1,000 respondents for studies involving large populations. A structured questionnaire was distributed online using Google Forms, disseminated via various social media platforms and messaging groups. This method allowed for efficient data collection from a wide geographical area and reduced administrative constraints.

### 2.2. Research Instruments and Analysis

The instruments used in this study were a structured questionnaire developed using validated indicators derived from previous studies. The constructs measured include service quality (physical environment, personnel quality, and technical quality), patient satisfaction, trust, commitment, and behavioral intention. Each variable was operationalized using 4 to 6 indicators, measured on a 6-point Likert scale ranging from 1 ('Strongly Disagree') to 6 ('Strongly Agree'). This even-numbered scale was deliberately employed to mitigate central tendency bias, particularly relevant for subjective constructs such as satisfaction and loyalty ([Garland, 1991](#); [Krosnick & Presser, 2010](#)).

The research's indicators were meticulously adapted from established academic sources like [Hamdan, Musa, Selamat, and Rashid \(2019\)](#). This approach ensures measures are reliable, valid, and theoretically grounded, leveraging prior research's rigor. Crucially, adaptation secured contextual relevance to healthcare services, refining phrasing to fit this specific domain and enhance participant comprehension. Data collection via Google Forms was chosen for its efficiency, automating distribution and recording, and its capacity for broad participant reach. This digital method allowed for wider dissemination and convenient completion for participants, contributing to a more expansive sample and potential generalizability of findings.

Data collected were subsequently analyzed utilizing SmartPLS 4.0. The analytical approach adhered to a two-step methodology, as proposed by [Anderson and Gerbing \(1988\)](#) which comprised Measurement Model Analysis and Structural Model Analysis.

Measurement Model Analysis involved assessing the reliability and validity of the constructs. Specifically, it included the evaluation of convergent validity (through factor loadings and average variance extracted), discriminant validity (via cross-loadings, the Fornell-Larcker criterion, and the heterotrait-monotrait ratio of correlations), and internal consistency reliability (Cronbach's alpha).

Meanwhile, Structural Model Analysis: This stage focused on evaluating the hypothesized relationships among latent variables and testing the proposed hypotheses. Mediation analysis was also conducted to ascertain the mediating roles of trust and commitment in the relationship between patient satisfaction and behavioral intention. The structural model's adequacy was then assessed using several predefined criteria:

- ◁ The  $R^2$  value was interpreted to indicate the predictivity (0.74), or strong ( $\geq 0.75$ ).
- ◁ Path coefficients were utilized to determine both the direction and strength of the relationships between variables.
- ◁ P-values were employed to assess statistical significance, with a threshold set at  $\leq 0.05$ .

### 3. RESULTS AND DISCUSSIONS

This study analyzed data collected from 212 respondents who had undergone inpatient care at private hospitals on the Island of Java, with a minimum hospitalization duration of two days. The respondents were classified based on gender, age, monthly expenditure, and domicile.

The sample was predominantly male (74.5%), with females comprising 25.5%, indicating a gender imbalance in participation. In terms of age distribution, 56.1% of respondents were aged 25–30, followed by 40.1% aged 17–25. The remaining participants, aged above 30, accounted for only 3.8%, reflecting a concentration of responses from younger, productive-age individuals.

Regarding monthly expenditure, 34.9% of respondents reported that they spent between IDR 3,000,000 and 5,000,000, and 33.5% fell within the IDR 1,000,000 to 3,000,000 range. The remaining participants had either lower or higher expenditure, reflecting a distribution skewed toward middle-income individuals.

In terms of domicile, the majority of participants were based in Jakarta (88.7%), with a small number residing in surrounding cities such as Tangerang (5.2%), and others scattered across Bogor, Depok, Bekasi, and outside the Greater Jakarta Area. This indicates a high regional concentration, particularly within the capital city.

The results of this study are divided into two parts: a) The Outer Model Analysis, which assesses the validity and reliability of measurement instruments, and b) The Inner Model Analysis, which tests the structural relationships among variables and evaluates the proposed hypotheses.

#### 3.1. Measurement Analysis

The measurement model was evaluated to ensure its convergent validity, discriminant validity, and reliability prior to structural model analysis. Convergent validity was assessed using factor loadings and Average Variance Extracted (AVE), with thresholds (Fornell & Larcker, 1981; Hair, Hult, Ringle, & Sarstedt, 2021). Several indicators did not meet these criteria and were removed accordingly.

From the Table 1 we concluded that PE2 (loading = 0.302), PQ5 (loading = 0.529), and TQ1 (loading = 0.038) were excluded due to insufficient factor loadings. Furthermore, second evaluation on factor loadings in Table 2 shows how BI4 and TQ4 were removed due to high HTMT ratio values ( $> 0.90$ ), indicating discriminant validity issues.

Table 1. Initial factor loadings.

	BI	C	PS	PQ	PE	T	TQ	AVE
BI1	0.854							0.725
BI2	0.899							
BI3	0.898							
BI4	0.777							
BI5	0.828							
C1		0.777						0.746
C2		0.893						
C3		0.914						
PE1					0.689			0.501
PE2					0.302*			
PE3					0.647			
PE4					0.889			
PE5					0.855			
PQ1				0.831				0.457
PQ2				0.626				
PQ3				0.670				
PQ4				0.688				
PQ5				0.529*				
PS1			0.927					0.737
PS2			0.811					
PS3			0.854					
PS4			0.836					
T1							0.867	0.713
T2							0.908	
T3							0.751	
T4							0.844	
TQ1						-0.038*		0.422
TQ2						0.755		
TQ3						0.832		
TQ4						0.654		

Note: \*Excluded factor.

Further reliability assessment was conducted using constructs of Personnel Quality ( $\alpha = 0.669$ ) and Technical Quality ( $\alpha = 0.611$ ) failed to meet the reliability threshold of 0.7 (Hair et al., 2021). Since Technical Quality was left with only two indicators after previous removals and continued to show HTMT violations (e.g., HTMT between TQ and PQ = 0.981) as seen in Table 2, the construct was considered unstable and conceptually overlapping (Hair et al., 2021). Thus, the Technical Quality construct was eliminated from the final model. This decision aligns with theoretical perspectives from Donabedian (1997) and Boshoff and Gray (2004) who emphasize the physical and personnel dimensions in healthcare service quality, rather than technical outcomes.

Table 2. HTMT ratio.

	BI	C	PS	PQ	PE	TQ	T
BI							
C	0.901						
PS	0.771	0.585					
PQ	0.779	0.734	0.812				
PE	0.869	0.761	0.856	0.892			
TQ	0.879	0.671	0.853	1.092	0.998		
T	0.838	0.732	0.874	0.786	0.898	0.842	

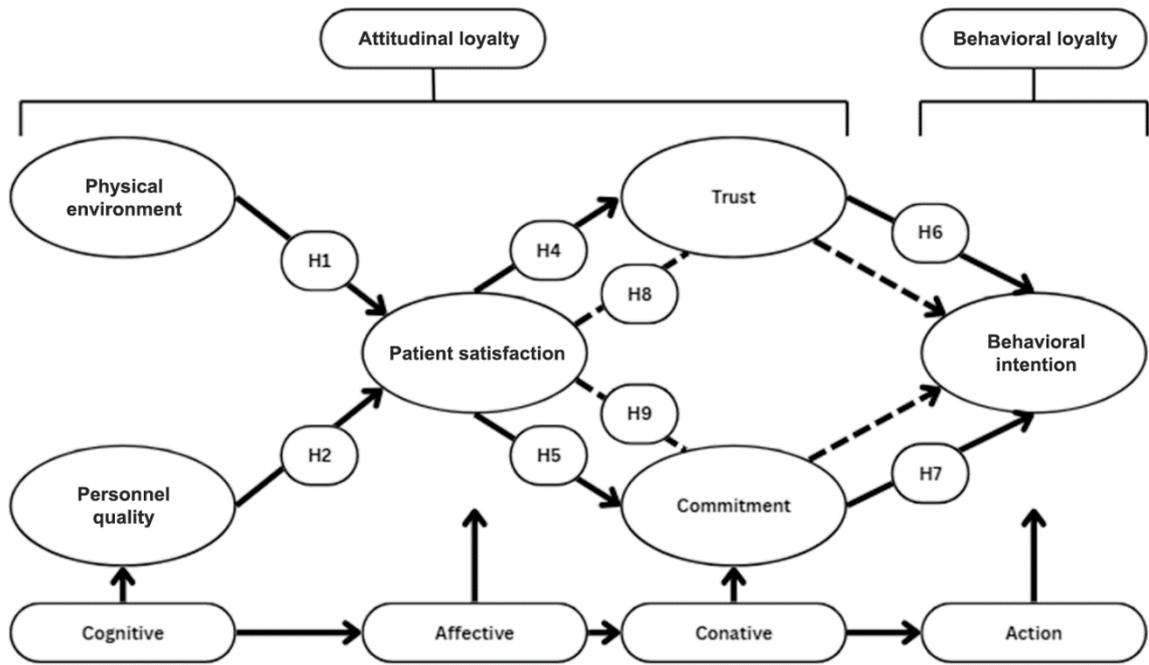


Figure 2. New conceptual model.

These refinements resulted in a final measurement model, as shown in Figure 2, with adequate construct validity and reliability. Table 3 represents all remaining constructs showed satisfactory Composite Reliability (> 0.7), and discriminant validity was confirmed through HTMT ratios, cross-loadings, and the Fornell–Larcker criterion. Moreover, the R-Square analysis results are presented in Table 4, which concludes the proportion of variance in the endogenous (dependent) variable that is explained by its predictors (independent variables).

Table 3. The results of validity and reliability analysis.

Variable	Indicator	Outer loadings	AVE	Cronbach's alpha	Composite reliability
Behavioral intention	BI1	0.854	0.780	0.908	0.934
	BI2	0.899			
	BI3	0.898			
	BI5	0.828			
Commitment	C1	0.777	0.744	0.834	0.896
	C2	0.893			
	C3	0.914			
Patient satisfaction	PS1	0.927	0.737	0.880	0.918
	PS2	0.811			
	PS3	0.854			
	PS4	0.836			
Personnel quality	PQ1	0.831	0.642	0.715	0.842
	PQ3	0.670			
	PQ4	0.688			
	PE1	0.689			
Physical environment	PE3	0.647	0.604	0.775	0.857
	PE4	0.889			
	PE5	0.855			
	Trust	T1			
T2		0.908			
T3		0.751			
T4		0.844			

**Table 4.** R-Square results.

Variable	R <sup>2</sup>
Behavioral intention	0.589
Commitment	0.388
Patient satisfaction	0.582
Trust	0.538

### 3.2. Structural Analysis

The inner model was used to evaluate the explanatory power of the proposed structural relationships. The R<sup>2</sup> values indicate that the endogenous variables have a moderate level of predictive accuracy (Hair et al., 2021) with Behavioral Intention (R<sup>2</sup> = 0.589), Patient Satisfaction (R<sup>2</sup> = 0.582), Trust (R<sup>2</sup> = 0.538), and Commitment (R<sup>2</sup> = 0.388). These results suggest that the proposed predictors explain between 38.8% and 58.9% of the variance in their respective dependent variables.

Path analysis results in Table 5 confirm that all hypothesized relationships were statistically significant (p-value < 0.05). Both Physical Environment (original sample value = 0.422; p-value = 0.017) and Personnel Quality (original sample value = 0.413; p-value = 0.008) had positive effects on Patient Satisfaction, supporting the cognitive-to-affective transition in the loyalty model. In turn, Patient Satisfaction significantly influenced Trust (original sample value = 0.735; p-value = 0.000), Commitment (original sample value = 0.609; p-value = 0.000), and Behavioral Intention (original sample value = 0.578; p = 0.000), highlighting its central role in driving both attitudinal and behavioral loyalty.

Additionally, Trust (original sample value = 0.486; p-value = 0.001) and Commitment (original sample value = 0.363; p-value = 0.004) had significant and positive effects on Behavioral Intention, supporting the conative-to-action linkage. The mediation tests also confirmed that Trust (original sample value = 0.357; p-value = 0.001) and Commitment (original sample value = 0.221; p-value = 0.008) significantly mediated the effect of Patient Satisfaction on Behavioral Intention.

Collectively, the findings validate the proposed loyalty framework, emphasizing the importance of patient satisfaction as a key antecedent that influences both trust and commitment, which subsequently strengthen behavioral intention.

**Table 5.** Path coefficients.

Path Analysis	Original sample (O)	P-value
Physical environment → Patient satisfaction	0.422	0.017
Personnel quality → Patient satisfaction	0.413	0.008
Patient satisfaction → Trust	0.735	0.000
Patient satisfaction → Commitment	0.609	0.000
Trust → Behavioral intention	0.486	0.001
Commitment → Behavioral intention	0.363	0.004
Patient satisfaction → Trust → Behavioral intention	0.357	0.001
Patient satisfaction → Commitment → Behavioral intention	0.221	0.008

### 3.3. Hypothesis Testing

#### *H<sub>1</sub>: The Impact of Physical Environment on Patient Satisfaction*

The first hypothesis proposed that the physical environment has a significant impact on patient satisfaction. The result supports this hypothesis (original sample value = 0.422; p-value = 0.017), indicating that a clean, comfortable, and well-maintained physical environment enhances patient satisfaction. This finding is consistent with previous studies highlighting the role of physical infrastructure in shaping satisfaction in healthcare settings (Ik et al., 2016; Yasar, 2016).

*H<sub>2</sub>: The Impact of Personnel Quality on Patient Satisfaction.*

The second hypothesis suggested that personnel quality significantly impacts patient satisfaction. The analysis results confirm this relationship (original sample value = 0.413; p-value = 0.008), demonstrating that competent, professional, and empathetic staff positively influence patient evaluations. This supports the existing theories that emphasize the importance of interpersonal service elements in customer satisfaction (Bayın & Önder, 2013) as well as empirical evidence linking staff behavior to improved patient experiences (Yasar, 2016).

*H<sub>4</sub>: The Impact of Patient Satisfaction on Trust.*

The fourth hypothesis stated that Patient Satisfaction has a significant impact on Trust. The path coefficient (original sample value = 0.735; p-value = 0.000) indicates a strong and significant relationship, suggesting that satisfaction plays a fundamental role in building trust. This result aligns with the customer relationship theory, which recognizes satisfaction as a prerequisite for trust development (Bayın & Önder, 2013; Shabbir et al., 2016).

*H<sub>5</sub>: The Impact of Patient Satisfaction on Commitment.*

According to the fifth hypothesis, commitment is positively impacted by patient satisfaction. The results (original sample value = 0.609; p-value = 0.000) support this hypothesis by demonstrating that patients are more likely to feel devoted to the healthcare service provider when they are satisfied. This finding is consistent with loyalty theory and earlier research that suggests long-term relationship commitment is based on satisfaction (Çetintürk, 2016; Moliner, 2009).

*H<sub>6</sub>: The Impact of Trust on Behavioral Intention*

According to the sixth hypothesis, behavioral intention is strongly influenced by trust. This hypothesis is supported by the analysis (original sample value = 0.486; p-value = 0.001), which indicates that patients are more likely to stick with and recommend the healthcare service provider if they have faith in it. This is consistent with loyalty models that highlight trust as a crucial precondition for positive word-of-mouth and repeat business (Krishnan et al., 2016; Moliner, 2009).

*H<sub>7</sub>: The Impact of Commitment on Behavioral Intention.*

The seventh hypothesis stated that commitment positively influences behavioral intention. The result (original sample value = 0.363; p-value = 0.004) confirms this relationship. It implies that committed patients are more inclined to support, return to, and advocate for the service provider. This finding supports previous literature describing commitment as a key factor in consumer loyalty (Morgan & Hunt, 1994; Narteh et al., 2013).

*H<sub>8</sub>: Trust Mediates the Impact of Patient Satisfaction on Behavioral Intention.*

The eighth hypothesis proposed that trust mediates the impact of patient satisfaction on behavioral intention. The mediation effect was statistically significant (original sample value = 0.357; p-value = 0.001), indicating that trust serves as a critical channel through which satisfaction translates into loyalty. This confirms the mediating role of trust as described in prior consumer relationship models (Shin et al., 2013).

*H<sub>9</sub>: Commitment Mediates the Impact of Patient Satisfaction on Behavioral Intention.*

The ninth hypothesis proved that commitment mediates the impact of patient satisfaction on behavioral intention. The findings support this hypothesis (original sample value = 0.221; p-value = 0.008), showing that commitment also serves a mediating role, enhancing the indirect effect of satisfaction on behavioral intention. This aligns with research identifying satisfaction as a driver of commitment, which in turn influences loyalty behaviors (Fatima et al., 2020).

The findings of this study provide several critical insights with direct relevance to healthcare policy and management practices. Firstly, the significant relationship between the physical environment and patient satisfaction suggests that healthcare providers must prioritize maintaining clean, comfortable, and aesthetically pleasing facilities. Policies should support regular facility maintenance, improvements to patient-centric design, and a hygienic, calming environment that contributes positively to the patient experience.

Furthermore, the effects of personnel quality in relation to patient satisfaction underscore the urgency of focusing on staff training and development. Healthcare employees must not only meet the baseline of technical skills but also, on the softer skills side, be empathetic and able to communicate in a professional manner. Thus, the human resources department should target policies with mandatory soft skills training, patient-centered performance reviews, and staff-to-patient ratio policies that enable tailored care.

These findings strongly support patient satisfaction as a central determinant of trust. This means that healthcare organizations need to be proactive in managing patient feedback and acting on the information provided through a clear process. Creating comprehensive systems to track and report on the patient experience and integrating satisfaction metrics into organizational performance can bolster public trust and institutional credibility.

Moreover, the connection between patient satisfaction and commitment indicates that healthcare organizations must adopt policies that encourage patient retention. These may include continuity of care policies, proactive patient engagement, or loyalty-driven wellness education and preventive care initiatives. Such changes can significantly strengthen patient loyalty.

Besides, the positive effect of trust on behavioral intentions, such as a patient's intention to return and recommend a healthcare professional, affirms the importance of institutional transparency, ethical behavior, and open communication. Healthcare organizations' policies should promote transparency in medical processes, pricing, and outcomes, as well as defend patients' rights and confidentiality.

Similarly, the finding that commitment influences behavioral intention means patient loyalty must be made a clear goal of healthcare service delivery. Long-term engagement tactics such as patient education programs, digital health websites, and personalized messaging need to be prioritized to facilitate patient-provider relationships and encourage ongoing support for the organization.

The research further illustrates the mediating influences of trust and commitment pertaining to patient satisfaction and behavioral intention. Based on this information, better patient satisfaction is not enough; healthcare providers must also have mechanisms to promote trust and commitment systematically. Policies aimed at improving satisfaction should always be mindful of involving aspects that promote perceptions of reliability, ethical practices within care, and continuity of care so that perceived satisfaction promotes continued loyalty.

In summary, the research findings highlight the importance of adopting a relationship-oriented approach in healthcare service delivery. Policymakers and healthcare administrators are encouraged to view patient satisfaction not as an isolated metric but as a strategic foundation for cultivating trust, commitment, and long-term behavioral engagement. By aligning organizational policies with these relational outcomes, healthcare institutions can improve service quality, enhance patient loyalty, and ensure sustainable healthcare delivery.

## 4. CLOSING

### 4.1. Conclusions and Suggestions

This study aimed to examine the formation of patient loyalty in private healthcare services using the Four-Stage Loyalty Model (Oliver, 1997), which conceptualizes loyalty as a progressive process through cognitive, affective, conative, and action stages. The research model incorporated constructs that reflect each stage: Service Quality (cognitive), Patient Satisfaction (affective), Trust and Commitment (conative), and Behavioral Intention (action). A key objective was also to assess the mediating roles of Trust and Commitment in strengthening the link between Satisfaction and Behavioral Intention.

The results in this study confirm that both Physical Environment and Personnel Quality significantly contribute to Patient Satisfaction, emphasizing the crucial role of tangible and human elements in forming patient evaluations. The elimination of Technical Quality due to redundancy and weak empirical performance suggests that, in the Indonesian healthcare service context, patients may not clearly distinguish between the outcomes of

care and the environments or personnel delivering them. This finding supports the argument on dimensions of service quality from Donabedian (1997) and Boshoff and Gray (2004) which focus on physical and human service aspects.

Furthermore, patient satisfaction emerged as a central construct, exerting strong direct effects on trust and commitment, and also serving as the source of indirect influence through both mediators. These findings validate the sequential loyalty formation proposed by the four-stage model, with satisfaction acting as the critical affective trigger that propels conative and behavioral responses. Gazi et al. (2024) model suggested in their study has a big effect and capture accurately the dynamic nature of customer-banking relationships.

From a practical perspective, this study offers a loyalty model that is not only statistically robust but also highly applicable to private healthcare institutions in Indonesia. It provides evidence-based insights on how improving physical settings and personnel quality can lead to higher satisfaction, which in turn fosters trust, commitment, and ultimately, loyal patient behaviors such as return visits and referrals.

In summary, the research findings highlight the necessity to follow a relational direction in healthcare service delivery. Policymakers and healthcare managers are invited to view patient satisfaction not in and of itself, but rather as a strategic foundation for establishing trust, commitment, and long-term behavioral compliance. By anchoring organizational policy on such relational outcomes, healthcare organizations can improve service quality, patient loyalty, and the viability of healthcare delivery.

#### 4.2. Limitations and Future Research

While this study provides valuable insights into the determinants of patient loyalty in private hospitals in Greater Jakarta, several limitations must be acknowledged. First, the use of purposive sampling limits the generalizability of the findings. Participants were selected based on specific criteria having been hospitalized for at least two days and discharged from private hospitals which may not represent the broader population of hospital patients, especially those in public hospitals, rural areas, or with different durations of hospital stay. The exclusion of these groups may have introduced sample bias and reduced the external validity of the findings.

Second, the research employed a cross-sectional design, collecting data at a single point in time. As a result, the study could not assess how patient satisfaction, trust, commitment, and loyalty intentions evolve over time. Future studies could adopt longitudinal designs to track changes in patient perceptions and behaviors, allowing for a more dynamic understanding of loyalty development. Third, due to issues of construct validity, the technical quality dimension of service quality was removed from the final model. This exclusion may have led to an incomplete assessment of the overall service quality experience. Future research should consider revisiting the measurement of technical quality using refined indicators or mixed-method approaches (e.g., interviews with patients and healthcare professionals) to ensure its unique contribution is appropriately captured.

Another limitation lies in the use of self-reported data, which may be subject to recall bias or social desirability bias, especially when patients evaluate their trust and commitment retrospectively. Incorporating objective measures (such as actual revisit rates, referral behavior, or hospital records) in future studies could help validate and complement subjective responses. Additionally, the study was conducted in Greater Jakarta, a highly urbanized and economically developed area, which may not reflect the experiences of patients in less developed regions of Indonesia. The cultural, economic, and institutional differences across provinces may influence patient expectations and loyalty drivers differently.

Future research should aim to expand the geographical scope of the study to include diverse regions and healthcare settings, such as public hospitals, community clinics, or religious/charitable institutions. Moreover, researchers could explore moderating variables such as age, education, income level, health condition severity, or health insurance status to better understand subgroup differences in loyalty formation. It would also be beneficial to investigate the role of digital health technologies (e.g., telemedicine, online appointment systems, or electronic

health records) in shaping patient satisfaction and loyalty, particularly in the post-pandemic era. Finally, comparative studies between developing and developed countries could help identify universal versus context-specific factors in patient loyalty, contributing to the broader body of global healthcare service literature.

#### 4.3. Managerial Implications

This study's findings offer several considerations for practitioners operating in private healthcare facilities within Indonesia. First, hospitals need to balance investing in the physical infrastructure of the practice, as well as the people, since both elements influence patient satisfaction. Spending on the physical infrastructure helps to improve the cleanliness, comfort, and accessibility of the hospital. Moreover, having a professional and empathetic staff aids in improving patient satisfaction. Second, the patient experience must include timeliness and promptness of services, appropriate and polite interactions, and a caring attitude. Third, trust must be cultivated and managed on an ongoing basis since it is the basis through which a patient can be retained for a longer period and loyal to the healthcare services. Finally, the development of patient loyalty must include elements that do not relate to the technical services provided to patients. Strengthening care that will shift the patients from being merely satisfied to loyal will be more beneficial through emotional and psychological approaches.

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**Data Availability Statement:** Upon a reasonable request, the supporting data of this study can be provided by the corresponding author.

**Competing Interests:** The authors declare that they have no competing interests.

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