



BRAND IMAGE, SERVICE QUALITY, AND CUSTOMER LOYALTY: EVIDENCE FROM A PRIVATE-OWNED PHARMACY WITH PHYSICIAN PRACTICE SERVICES

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ABSTRACT

Customer loyalty is a vital factor influencing sustainability and competitiveness in the pharmaceutical industry. Loyalty is determined by the quality of services provided and the robustness of the pharmacy's brand image. This research investigates the impact of brand image and service quality on customer loyalty at MM Pharmacy. A quantitative research design was employed utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM), with data gathered via surveys from 100 respondents selected through purposive sampling based on the Slovin formula. The findings indicate that brand image and service quality substantially influence consumer loyalty, with brand image exerting a more pronounced effect. Effect size analysis (f^2) revealed that brand image exerted a substantial influence on customer loyalty ($f^2 = 0.376$), while service quality exhibited a minimal effect ($f^2 = 0.130$). This study also indicates that the R^2 value of 0.737 demonstrates that the joint impact of brand image and service quality explains 73.7% of the variance in customer loyalty, signifying a significant impact. The remaining 26.3% may be affected by additional variables not incorporated in the model. Furthermore, the Q^2 value, which evaluates predictive relevance, confirms the model's capability to accurately predict unobserved data by considering both exogenous and endogenous variables.

Keywords: brand image; customer loyalty; service quality

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INTRODUCTION

The retail pharmaceutical industry in Indonesia has experienced remarkable growth over the past decade, driven by increasing public awareness of health and improved access to medications. The emergence of numerous new pharmacies established by individual entrepreneurs and franchise networks has created intense competition among them (Ismail et al., 2023; Laghbi & Dhoayan, 2024). In this context, customer loyalty has become a key factor in sustaining the business performance of pharmacies. Pharmacy MM is one of the pharmacies managed by an entrepreneur and was established in 2014. Although it has been operating for over a decade, based on discussions with the Pharmacy Manager, Pharmacy MM faces serious challenges in maintaining its business performance. Internal data indicate that sales turnover has remained stagnant despite increasing demand for pharmaceutical services. The absence of significant progress in business performance has increasingly posed major challenges in maintaining overall performance, particularly due to stagnant sales turnover (Antari et al., 2021). This situation raises questions regarding the factors influencing Pharmacy MM's customer loyalty.

One key factor influencing customer loyalty is the brand image. Brand image shapes positive consumer perceptions of a pharmacy's quality and reputation (Nitadpakorn et al., 2017). A pharmacy with a strong and positive image can more easily build emotional connections with customers, potentially increasing the frequency of visits and purchases (Laghbi & Dhoayan, 2024; Safirda & Salim, 2024). Studies have shown that a strong brand image positively correlates with customer satisfaction and loyalty (Sazvar et al., 2021; Marifah et al., 2022). This indicates that if MM Pharmacy aims to improve customer loyalty, it needs to strengthen its brand image to remain competitive with better-known competitors.

Furthermore, service quality significantly influences customer experience (AlRuthia et al., 2017). Superb service, characterised by timely responses, precise information, and professionalism, significantly elevates client happiness and loyalty (Safirda & Salim, 2024; Guhl et al., 2018). A study within the pharmaceutical sector identified a robust correlation among high-quality service, customer happiness, and loyalty (Lee & Kim, 2017). In the realm of Pharmacy MM, inadequate service quality that does not align with consumer expectations may elucidate the stall in business performance. Enhancing service quality can elevate customer experience and promote repeat patronage (Sardiyanto, 2019).

This research investigates the influence of brand image and service quality on customer loyalty at Pharmacy MM. It examines the interplay between these two characteristics and their impact on customer purchase decisions to aid pharmacy owners in formulating more effective methods to bolster client loyalty (Antari et al., 2021; Kurniati et al., 2023). The study is important because the sustainability of pharmacy businesses increasingly depends on their ability to maintain loyal customers amid heightened competition, changing consumer expectations, and the rise of modern pharmacy models that emphasize convenience and integrated health services, understanding how brand image and service quality shape loyalty provides valuable insight into strategic management practices that can strengthen the long-term relationship between pharmacies and their customers. Therefore, this study aims to analyze how brand image and service quality affect customer loyalty, offering evidence-based recommendations to enhance marketing strategies, improve service delivery, and increase competitiveness in the pharmaceutical retail sector.

METHOD

This research is explanatory and designed to delineate the levels of the researched variables to acquire knowledge regarding their impact. This study employs a quantitative approach. Primary data were obtained based on the results of a Google Form questionnaire survey, filled out directly by visitors to Pharmacy MM who had signed an informed consent form. The research was conducted for five months, from May to October 2025. The population of this study consists of all visitors to Pharmacy MM. The total number of visits in 2024 was used to determine the sample size. Then, by applying Slovin's formula with a sampling error tolerance of 10%, a total sample of 100 respondents was obtained (Putri & Kartika, 2017). The research instrument was a questionnaire, with indicators derived from specific references such as scientific journals, books, or other supporting materials. The statistical instrument utilised was a Likert scale ranging from 1 to 5, with 1 signifying strong disagreement is represented by 1, and 5 indicating strong agreement. Data collection involved gathering responses from Pharmacy MM visitors who had received services using a Google Form that included three variable sections with 42 questions. The questionnaire data were processed and analyzed using Structural Equation Modeling (SEM) assisted by SmartPLS software (Sarstedt et al., 2017; Hair et al., 2022).

RESULT

Descriptive Analysis of Respondents

Pharmacy MM is a pharmacy that has been operating for approximately ten years, adopting a conventional pharmacy service model that includes in-house doctor consultations. The sociodemographic information of Pharmacy MM's customers includes age, educational level, and type of occupation. These three aspects are used as demographic data in this study.

Table 1.

Sociodemographic Data of Respondents

Sociodemographic	f	%
Age Profile		
< 20 Years	4	4
21 - 30 Years	87	87
31 - 40 Years	8	8
41 - 50 Years	1	1

Sociodemographic	f	%
Education Profile		
Senior High School	15	15
Diploma	9	9
College	73	73
Master's Degree	2	2
Doctoral	1	1
Job Profile		
Civil Servants	8	8
Homemakers	10	10
SOE Employees	4	4
Private Employees	59	59
Entrepreneurs	19	19

Partial Least Squares (PLS)

Multivariate statistical analysis evaluates the impact of multiple variables at the same time. This method is used to construct, investigate, or predict a structural model. Evaluating the measurement model, the structural model, and the overall model fit or quality is essential when employing the Partial Least Squares (PLS) method (Sarstedt et al., 2017).

Measurement Model Evaluation Convergent Validity

Table 2.
Evaluation Statistics of the Reflective Measurement Model

Variables	Aspects	Indicator	Outer Loading	Cronbachs Alpha	Composite Realibility	AVE
Brand Image	Corporate Image	BI 01	0,886	0,928	0,944	0,736
		BI 02	0,914			
		BI 03	0,849			
	User Image	BI 05	0,831			
		BI 13	0,875			
	Product Image	BI 15	0,787			
Service Quality	Tangible	SQ 01	0,808	0,986	0,987	0,846
		SQ 02	0,874			
		SQ 03	0,906			
		SQ 04	0,914			
	Reliability	SQ 05	0,934			
		SQ 06	0,919			
		SQ 07	0,934			
	Responsiveness	SQ 10	0,935			
		SQ 11	0,903			
	Assurance	SQ 12	0,934			
		SQ 13	0,946			
		SQ 14	0,953			
	Emphaty	SQ 15	0,951			
		SQ 16	0,953			
Customer Loyalty	Trust	CL 02	0,859	0,954	0,963	0,813
	Price Change	CL 05	0,900			
	Publicity Behavior	CL 06	0,927			
		CL 07	0,930			
	Cooperation	CL 08	0,908			
		CL 09	0,886			

Convergent validity is an evaluation demonstrating a positive correlation between indicators measuring the same construct. Each construct must fulfill the required validity standards. This study employs a reflective measurement approach, wherein constructs such as brand image, service

quality, and customer loyalty are evaluated reflectively. The assessment of the reflective measurement model necessitates outer loadings of ≥ 0.70 , composite reliability and Cronbach's alpha values exceeding 0.70, and an Average Variance Extracted (AVE) of ≥ 0.50 (Sarstedt et al., 2017).

Referring to Table 2, six indicator items derived from three dimensions, corporate image, user image, and product image, can reflect the brand image variable. For the service quality variable, 14 indicators are sufficient to measure the pharmacy's service quality. Meanwhile, customer loyalty is calculated using six indicator items. These indicators have outer loading values exceeding 0.7, indicating that each item accurately represents its corresponding construct. The reliability of these variables is classified as good, with composite reliability (CR) and Cronbach's alpha values surpassing the minimum threshold of 0.70, confirming that all variables are reliable. Moreover, convergent validity is established, evidenced by Average Variance Extracted (AVE) values beyond the requisite threshold (> 0.50), signifying that the indicators adequately fulfil the criteria for convergent validity (Sarstedt et al., 2017).

Discriminant Validity

Discriminant validity is assessed to ascertain the distinctiveness of a variable from others, both in terms of correlation and by confirming that each indicator appropriately reflects its designated construct. Multiple criteria are employed to evaluate discriminant validity, including the Fornell-Larcker Criterion, the Heterotrait-Monotrait Ratio (HTMT) threshold of below 0.90, and cross-loadings, all of which assist in verifying that the variables are distinct from one another. A dataset satisfies the Fornell-Larcker criterion when the Average Variance Extracted (AVE) square root for a specific variable exceeds its correlation with any other variable. Conversely, the HTMT method is regarded as a more discerning technique for detecting potential concerns regarding discriminant validity compared to alternative methods, such as the Fornell-Larcker Criterion or cross-loadings. An HTMT result below 0.90 signifies that the variables in the study meet the criteria for sufficient discriminant validity (Hair et al., 2022).

Table 3.
Fornell-Larcker statistics and Heterotrait Monotrait Ratio (HTMT)

	Brand Image	Service Quality	Customer Loyalty
Fornell-Larcker			
Brand Image	0,858*		
Service Quality	0,829	0,920*	
Consumer Loyalty	0,838	0,798	0,902*
Heterotrait Monotrait Ratio (HTMT)			
Brand Image			
Service Quality	0,867		
Consumer Loyalty	0,888	0,821	

The diagonal value* is the root AVE and the other values are correlations.

Source: Data Processing Results 2025 (SmartPLS 4.0 Output)

Structural Model Evaluation

Assessing the structural model in Smart PLS is essential in evaluating the relationships among latent variables within a PLS-SEM framework. The primary goal is to ensure that the model appropriately reflects the data and that the connections between latent constructs are correctly interpreted. This process involves three key steps: examining multicollinearity, conducting hypothesis testing, and evaluating effect size using f-square (f^2) values (Sarstedt et al., 2017).

Multicollinearity Test

The multicollinearity test in Smart PLS is conducted to determine the degree of correlation among independent (predictor) variables within a PLS-SEM model. When multicollinearity is high, it suggests that two or more independent variables are strongly interrelated, which may disrupt the estimation of parameters in the model. Smart PLS addresses this issue using the Variance Inflation

Factor (VIF) indicator. The VIF assesses how much the variance of a predictor increases due to its correlation with other predictors in the model. A higher VIF reflects greater multicollinearity. The interpretation criteria for VIF values are as follows: if $VIF \leq 5$, multicollinearity is not a concern, and the model remains stable; if $VIF > 5$, it suggests moderate multicollinearity, and the model might require refinement; and if $VIF > 10$, it indicates severe multicollinearity, which should be addressed by potentially removing or combining variables with strong correlations (Sarstedt et al., 2017; Hair et al., 2022; Hair et al., 2017). In this study, Smart PLS results suggest that the VIF values for brand image and service quality's influence on customer loyalty are 3.202. This outcome suggests no problematic multicollinearity among the independent variables, as the relationships are within an acceptable range.

Hypothesis Test

In Smart PLS, hypothesis testing evaluates the proposed relationships within a PLS-SEM structural model. The objective is to determine whether the connections between latent variables (constructs) are statistically significant. This procedure entails evaluating path coefficients, in conjunction with the t-statistic and p-value, to ascertain the strength and significance of the associations. At a significance level of 5% ($\alpha = 0.05$), the critical value for the t-statistic is 1.96. If the t statistic is equal to or greater than this number, the association between the constructs is deemed statistically significant. A p-value of 0.05 or lower signifies a significant association. Consequently, a high t-statistic coupled with a low p-value results in the acceptance of the hypothesis, implying a substantial relationship between the constructs; in contrast, a low t-statistic and high p-value necessitate the rejection of the hypothesis, signifying an absence of a meaningful relationship. Path coefficients elucidate the direction and magnitude of the correlations. The coefficients generally vary from -1 to +1. A score approaching +1 signifies a robust positive correlation, whereas a value around -1 implies a significant negative correlation (Sarstedt et al., 2017; Hair et al., 2022; Hair et al., 2017; Hair et al., 2019). In addition, examining the estimated path coefficients and the f-square (f^2) values is essential. The f^2 value measures the effect size or the extent to which one construct contributes to another in the model. Standard criteria stipulate that a f^2 value of 0.35 or greater denotes a substantial influence, a value ranging from 0.15 to 0.35 reflects a moderate impact, and a value below 0.15 indicates a minimal effect (Hair et al., 2022).

Table 4.
Hypothesis Testing

	T statistics	Path Coefficient	p values	f-square
H1. Brand Image -> Customer Loyalty	4.335	0.563	0.000	0.376
H2. Service Quality -> Consumer Loyalty	2.391	0.332	0.017	0.310

Source: Data Processing Results 2025 (SmartPLS 4.0 Output)

Based on Table 4, the first hypothesis (H1) is confirmed, revealing that brand image significantly impacts customer loyalty. In other words, the more positive the brand image of Pharmacy MM, the higher the level of customer loyalty. From the perspective of the structural model, the contribution of brand image to customer loyalty is considered high, as indicated by an f-square value of 0.376. The second hypothesis (H2) is also supported, indicating that service quality significantly enhances customer loyalty. In other words, any improvement in service quality at Pharmacy MM will increase customer loyalty. From the structural model perspective, the resulting f-square value of 0.130 indicates that the influence of service quality on customer loyalty falls into the small effect category.

Model fit and goodness of fit evaluation

Partial Least Squares (PLS) is a variance-focused methodology within Structural Equation Modelling (SEM), frequently employed for assessing theoretical models, especially in predictive studies. The evaluation entails studying the model's fit via the Standardised Root Mean Square Residual (SRMR) and measuring the overall model quality or goodness of fit through critical

indicators such as R-squared (R^2) and Q-squared (Q^2) values (Sarstedt et al., 2017; Hair et al., 2022; Hair et al., 2017; Hair et al., 2019).

Evaluating model fit is essential in ascertaining the degree to which a given model accurately represents the intended data. In Smart PLS, model fit is typically assessed using the Standardised Root Mean Square Residual (SRMR), which quantifies the divergence between the empirical correlation matrix obtained from observed data and the matrix forecasted by the model. An SRMR value of < 0.08 is often deemed acceptable, with lower values signifying a superior model fit to the data (Hair et al., 2022). The investigation yielded an SRMR value of 0.047, indicating a reasonable model fit. To evaluate the model's explanatory power and prediction performance, measures of model quality, notably R-squared (R^2) and Q-squared (Q^2), are employed in Smart PLS.

The coefficient of determination (R^2) quantifies the extent to which independent factors account for the variance in the dependent variable. An elevated R^2 value signifies a greater capacity of the model to elucidate the outcome. Chin (1998) interprets R^2 values as follows: 0.19 signifies a modest influence, 0.33 denotes a moderate effect, and 0.66 represents a considerable impact. (Chin & Newsted, 1998) This study indicates that the R^2 value of 0.737 demonstrates that the joint effect of brand image and service quality explains 73.7% of the variance in customer loyalty, signifying a significant impact. The remaining 26.3% may be affected by additional variables not incorporated in the model. Q^2 , which evaluates Predictive Relevance, gauges the model's capacity to accurately forecast unobserved data, considering both exogenous and endogenous variables. This statistic is crucial for assessing the model's efficacy in predicting new or future observations. Q^2 values are interpreted as follows: 0.00 indicates poor predictive relevance, 0.25 signifies moderate relevance, and 0.50 denotes strong relevance. (Hair et al., 2019) The investigation in this study produced a Q^2 value of 0.729 for the customer loyalty construct, meaning that the model possesses substantial predictive significance.

DISCUSSION

The research findings show that brand image and service quality significantly influence customer loyalty at MM Pharmacy. These results align with the view that a pharmacy's success in retaining customers relies not only on the services provided but also on how the brand image is built and perceived by customers. First, the results of the first hypothesis (H1) confirm that brand image strongly impacts customer loyalty. This supports Aaker's (1996) theory, which states that brand image reflects customers' perceptions, associations, and beliefs about a brand (Guhl et al., 2018). When a pharmacy's brand image is perceived positively, such as having a good reputation, professional healthcare staff, and consistent service, customers are more likely to remain loyal (Antari et al., 2021; Nitadpakorn et al., 2017). Furthermore, previous research by Tjiptono (2015) also emphasized that brand image in healthcare services can foster long-term trust (Antari et al., 2021). Having operated for over a decade, Pharmacy MM has the potential to establish a strong brand image in consumers' minds, which in turn can influence their decision to remain loyal (Laghbi & Dhoayan, 2024).

Based on these findings, brand image is one of the crucial elements contributing to the development of customer loyalty in pharmacies. Therefore, it is essential to maintain and enhance the brand image to strengthen customer loyalty (Ezekiel et al., 2024; Oliver, 1999). Positive associations influence consumer trust, where a strong brand image creates favorable perceptions of the products or services offered (Monfort et al., 2025; Huang et al., 2020). Customers who have had satisfying interactions with a brand are more likely to maintain their preference and choose the same brand in future purchase decisions (Pereira et al., 2021; Aaker, 1991). Pharmacy differentiation is key in making the brand more recognizable and distinguishable from competitors. This differentiation helps create stronger customer preferences, making them more inclined to return to the same brand (Diwayanti et al., 2025; Keller, 1993). When customer expectations align with the brand image, it can lead to deep satisfaction that evolves into emotional attachment. This attachment makes customers more loyal and reluctant to switch to other brands due to a strong psychological

connection with the brand (Kotler & Keller, 2016). Ultimately, customers who perceive a brand positively are more likely to share their experiences with others (Cuong & Khoi, 2019). Such support, in the form of recommendations, not only strengthens their loyalty but also plays a vital role in attracting new customers, naturally expanding the brand's reach (Kumar et al., 2024; Li et al., 2025; Zeithaml et al., 1996).

The second hypothesis (H2) indicates that service quality positively, albeit smaller, affects customer loyalty. This suggests that while service quality is essential, its impact on loyalty at Pharmacy MM is weaker than that of brand image. This finding aligns with the SERVQUAL theory introduced by Parasuraman et al. (1988), highlighting five core dimensions that shape service quality: reliability, responsiveness, assurance, empathy, and tangible elements (Ihekoronye et al., 2021). Improving these aspects can strengthen the emotional connection between customers and the pharmacy, even if the effect may not be as significant as that of brand image. Research also indicates high service quality can boost customer satisfaction and increase loyalty (Ressandy, 2019). In the context of Pharmacy MM, customers already have a strong perception of the brand image, which may outweigh their evaluation of the service received. Thus, the contribution of service quality to loyalty appears relatively minor (Nikolova et al., 2017).

In addition, the relatively small influence of service quality on customer loyalty at MM Pharmacy may be because the service quality does not touch customers' emotional side. Service quality that connects emotionally is believed to enhance consumer loyalty. Such service goes beyond functional aspects, such as speed and accuracy, and emphasizes the customer's emotional experience. This type of service fosters more personal relationships, increasing feelings of being valued, comfortable, and emotionally connected to the service provider (Oliver, 2015). Elements of service quality that appeal to the emotional side include empathy, or the ability of service staff to understand and feel the needs and emotions of the customer (Zeithaml et al., 1988); trust and safety, which make customers feel secure and confident in the services provided (Zeithaml et al., 1996); personal touch, such as engaging in interactions that show personal attention, like remembering customers' names and habits (Hennig-thurau et al., 2002); warmth and friendliness, demonstrated through friendly attitudes, smiling, and warm tones of voice (Mittal & Lassar, 1996); and emotional responsiveness, such as offering support when customers face difficulties or confusion by providing solutions that go beyond mere procedural responses (Oliver, 2015).

These findings suggest that strengthening brand image should be the primary strategy to build customer loyalty while giving due attention to continuous improvement of service quality. A combination of positive brand perception and consistently high-quality service will be crucial to maintaining and expanding the customer base at Pharmacy MM (Nitadpakorn et al., 2017; Laghbi & Dhoayan, 2024).

CONCLUSION

The research findings indicate that brand image and service quality significantly influence customer loyalty at MM Pharmacy, with brand image exerting a greater impact than service quality. A positive brand image can build customers' perceptions, trust, and emotional attachment, strengthening loyalty. Therefore, strategies to enhance and maintain a strong brand image should be a top priority in establishing long-term relationships with customers. Meanwhile, although service quality has an effect, its impact is relatively small. This suggests that the services provided have not fully addressed the emotional aspects of the customer experience. Hence, improving service quality by incorporating a more personal, warm, and empathetic approach is necessary to make customers feel more appreciated and emotionally connected to the pharmacy. A strong brand image and emotionally engaging service will be crucial in increasing customer loyalty and gaining a competitive advantage in the pharmacy industry.

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