Journal of Pharmaceutical and Sciences
Electronic ISSN: 2656-3088 DOI: https://doi.org/10.36490/journal-jps.com
Homepage: https://journal-jps.com



ORIGINAL ARTICLE JPS. 2026, 9(4), 3521-3536

Factors Associated with Declining Patient Visits: The Roles of Service, Operational, Market Competition, and Health Policy Factors in a Private Hospital in South Kalimantan

Faktor-Faktor yang Berkaitan dengan Penurunan Kunjungan Pasien: Peran Faktor Pelayanan, Operasional, Persaingan Pasar, dan Kebijakan Kesehatan pada Rumah Sakit Swasta di Kalimantan Selatan

Eka Sri Rahayu [a,b*], Kosasih [b], Ayu Laili Rahmiyati [b], Farida Yuliaty [b], Vip Paramarta [b]

[a] *Marina Permata Hospital, Tanah Bumbu, South Kalimantan, Indonesia*
[b] *Universitas Sangga Buana YPKP, Bandung, Indonesia.*

**Corresponding Authors: ekarahayu924@gmail.com*

Abstract

Declining patient visits threaten the operational performance and financial sustainability of private hospitals operating under Indonesia's National Health Insurance (JKN) scheme. This study examined the associations of service, operational, market competition, and health policy factors with declining patient visits at Marina Permata Hospital, Tanah Bumbu, South Kalimantan, and identified the dominant factor. A quantitative cross-sectional survey was conducted among 400 patients or family members selected by purposive sampling; most respondents (88.0%) were JKN/BPJS Kesehatan participants. Likert-scale data were transformed using the Method of Successive Intervals and analysed by multiple linear regression with HC3 heteroskedasticity-robust standard errors and 5,000 bootstrap resamples. Service factors were negatively associated with declining patient visits ($\beta = -0.289$; $p < 0.001$), whereas operational factors ($\beta = 0.202$; $p < 0.001$) and market competition ($\beta = 0.579$; $p < 0.001$) were positively associated; the positive operational coefficient reflected a statistical suppression effect, as its zero-order correlation was negligible ($r = -0.027$). Health policy was not significantly associated with declining patient visits ($\beta = -0.014$; $p = 0.781$). Jointly, the four factors were significantly associated with declining patient visits ($F = 62.404$; $p < 0.001$) and were associated with 38.7% of its variance (adjusted $R^2 = 0.381$; Cohen's $f^2 = 0.63$). Market competition was the dominant factor, accounting for 33.64 percentage points of the explained variance. These findings indicate that sustaining patient visits in a regency-level private hospital requires a deliberate competitive strategy supported by targeted improvements in service reliability and waiting times.

***Keywords*: Declining patient visits; hospital management; service factors; operational factors; market competition; health policy**

Abstrak

Penurunan kunjungan pasien mengancam kinerja operasional dan keberlanjutan finansial rumah sakit swasta yang beroperasi dalam skema Jaminan Kesehatan Nasional (JKN). Penelitian ini menganalisis hubungan faktor pelayanan, operasional, kompetisi pasar, dan kebijakan kesehatan dengan penurunan kunjungan pasien di Rumah Sakit Marina Permata, Tanah Bumbu, Kalimantan Selatan, serta mengidentifikasi faktor yang paling dominan. Survei kuantitatif dengan desain potong lintang dilakukan pada 400 pasien atau keluarga pasien yang dipilih dengan *purposive sampling*; sebagian besar responden (88,0%) merupakan peserta JKN/BPJS Kesehatan. Data skala Likert ditransformasi menggunakan *Method of Successive Intervals* dan dianalisis dengan regresi linear berganda menggunakan *robust standard error* HC3 dan 5.000 resampel *bootstrap*. Faktor pelayanan berhubungan negatif dengan penurunan kunjungan pasien ($\beta = -0{,}289$; $p < 0{,}001$), sedangkan faktor operasional ($\beta = 0{,}202$; $p < 0{,}001$) dan kompetisi pasar ($\beta = 0{,}579$; $p < 0{,}001$) berhubungan positif; koefisien positif faktor operasional mencerminkan efek supresi statistik karena korelasi orde-nolnya sangat kecil ($r = -0{,}027$). Kebijakan kesehatan tidak berhubungan signifikan dengan penurunan kunjungan pasien ($\beta = -0{,}014$; $p = 0{,}781$). Secara simultan, keempat faktor berhubungan signifikan dengan penurunan kunjungan pasien ($F = 62{,}404$; $p < 0{,}001$) dan berasosiasi dengan 38,7% variasinya (*adjusted* $R^2 = 0{,}381$; *Cohen's* $f^2 = 0{,}63$). Kompetisi pasar merupakan faktor dominan dengan kontribusi 33,64 poin persentase terhadap varians yang dijelaskan. Temuan ini menunjukkan bahwa upaya mempertahankan kunjungan pasien pada rumah sakit swasta di tingkat kabupaten memerlukan strategi kompetitif yang terencana, didukung perbaikan terarah pada keandalan layanan dan waktu tunggu.

***Kata Kunci*: Penurunan kunjungan pasien; manajemen rumah sakit; faktor pelayanan; faktor operasional; kompetisi pasar; kebijakan kesehatan.**

Copyright © 2020 The author(s). You are free to : **Share** (copy and redistribute the material in any medium or format) and **Adapt** (remix, transform, and build upon the material) under the following terms: **Attribution** — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use; **NonCommercial** — You may not use the material for commercial purposes; **ShareAlike** — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. Content from this work may be used under the terms of the a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License

https://doi.org/10.36490/journal-jps.com. v9i4.1915

Article History:

Received: 29/05/2026,
Revised: 10/09/2026
Accepted: 10/09/2026,
Available Online: 19/11/2026.

QR access this Article

Introduction

Hospitals are complex healthcare organizations that must reconcile their social mission with operational and financial sustainability. Hospital performance is shaped not only by internal managerial capability but also by regulatory change, technological development, rising patient expectations, and competition among healthcare providers [1,2]. Sustaining patient utilization is therefore a central managerial concern, because a decline in patient visits lowers capacity utilization, weakens operational efficiency, and ultimately threatens the financial viability of the institution [3,4].

The Indonesian healthcare system has undergone substantial transformation since the introduction of the National Health Insurance (*Jaminan Kesehatan Nasional*, JKN) programme administered by BPJS Kesehatan in 2014. JKN has expanded population coverage and increased the use of outpatient and inpatient services, while simultaneously reshaping healthcare financing and referral mechanisms [5–7]. Prospective payment through the Indonesia Case-Based Groups (INA-CBG) system has required hospitals to strengthen cost control and operational efficiency [6,8]. At the same time, capitation-based payment at the primary care level and the tiered referral system determine which patients reach hospitals and through which pathways, thereby influencing patient flows between providers [9,10].

Several factors may contribute to changes in patient visits. Service quality is a key internal factor because patients evaluate providers on the basis of tangibility, reliability, responsiveness, assurance, and empathy [11]. Previous studies have shown that service quality is associated with perceived value, patient satisfaction, trust, and revisit intention [12–16]. Waiting time and responsiveness are particularly influential in shaping patients' experiences and their decisions to return to a healthcare provider [13,17].

Operational factors may also influence patient utilization through the availability of human resources, medical equipment, and facilities, as well as through service processes, waiting times, and administrative procedures. Efficient management of these inputs is a recognized determinant of hospital performance and patient experience [18–20]. From the demand side, service speed, waiting time, and the availability of medical resources are among the attributes patients consider when selecting a healthcare provider [21,22].

In addition to internal factors, market competition may influence patient visits. A growing number of healthcare providers gives patients greater opportunity to compare hospitals in terms of service quality, reputation, facilities, accessibility, cost, and previous experience [21,23]. Evidence from China and the United States suggests that competition can encourage hospitals to improve quality and efficiency, while relatively weaker performers tend to lose market share and patient volume [24–26]. However, this evidence comes largely from urban, high-density markets with price-setting mechanisms that differ from those in Indonesia, where JKN regulates tariffs and referral pathways; its applicability to Indonesian regency-level markets therefore cannot be assumed. Patient choice is further shaped by reputation, recommendations, distance, professional competence, equipment availability, cost, and waiting time [22,27]. Indonesian studies indicate that marketing-mix elements and hospital brand image are associated with patient satisfaction, loyalty, and revisit intention [28,29].

Health policy represents another external factor that may shape patient utilization. JKN financing, tiered referral mechanisms, BPJS Kesehatan credentialing, INA-CBG reimbursement, and the implementation of the Standard Inpatient Class (*Kelas Rawat Inap Standar*, KRIS) may influence patient access, referral patterns, hospital capacity, and operational performance [5,8]. KRIS requires hospitals to meet standardized ward criteria, including bed spacing, room capacity, ventilation, and bathroom accessibility, and early evaluations have identified building limitations and technical constraints as key implementation challenges [30]. Such

requirements may impose additional infrastructure and financial burdens on private hospitals, which, unlike public hospitals, cannot rely on government capital funding.

These factors ultimately converge in patient decision-making. Because patients often have difficulty evaluating the technical quality of care before treatment, they rely on observable cues such as reputation, recommendations, accessibility, physical facilities, and previous experience [21,23]. Consequently, patient visits are likely to reflect the interaction between a hospital's internal service and operational capabilities and its external competitive and policy environment.

Despite the growing literature, three gaps remain. First, service quality, hospital operations, market competition, and health policy have largely been investigated separately [12,17,24,26,31], and studies that integrate internal and external determinants within a single explanatory model of declining patient visits remain scarce. Second, most Indonesian evidence originates from hospitals in metropolitan areas or on Java, whereas regency-level healthcare markets outside Java differ in theoretically important ways: they tend to be smaller and more concentrated, involve longer travel distances, have a more limited supply of specialists, and depend more heavily on JKN financing [32]. In such thin markets, the entry or upgrading of a single competitor may redistribute patient flows considerably, whereas national policies affect all providers simultaneously. Third, private hospitals in these settings depend on patient volume for revenue under fixed INA-CBG tariffs and lack public subsidies, making a decline in patient visits a direct threat to sustainability.

Marina Permata Hospital, a private hospital in Tanah Bumbu Regency, South Kalimantan, provides an informative case for addressing these gaps. According to hospital records (2021–2025), patient visits increased from 26,268 in 2021 to 44,146 in 2023 but subsequently declined to 43,469 in 2024 and 37,892 in 2025 (**Figure 1**), a reduction of 14.2% from the 2023 peak. Because this growth-and-decline trajectory occurred under the same national JKN regime, the case allows an examination of whether a decline in utilization is better explained by deterioration in internal service and operational performance or by changes in the external competitive and policy environment—a distinction that is central to strategic hospital management [1,2]. A comparable decline in patient visits has also been reported at a hospital in Banjarbaru in the same province [29], suggesting that the phenomenon may be of broader regional relevance.

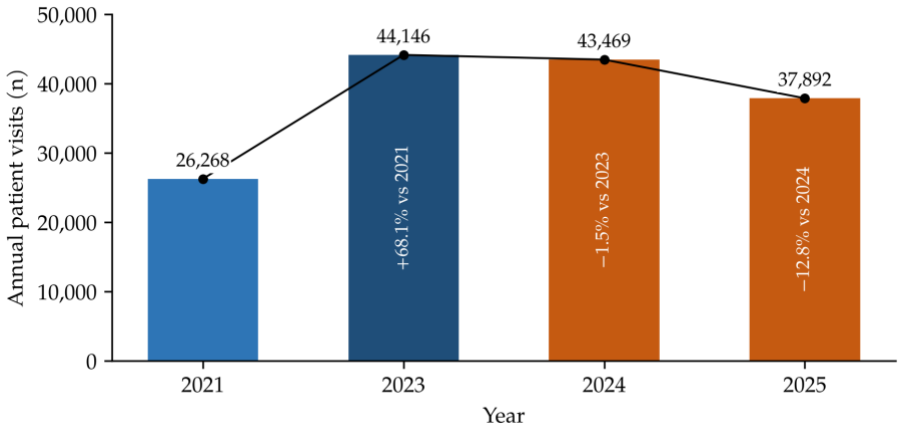


Figure 1. Annual patient visits at Marina Permata Hospital in 2021 and 2023–2025.

Therefore, this study aimed to analyze the associations of service, operational, market competition, and health policy factors with declining patient visits at Marina Permata Hospital, South Kalimantan, both individually and simultaneously, and to identify the dominant factor. The findings are expected to provide evidence that hospital managers can use to develop targeted strategies for addressing declining patient visits and strengthening hospital competitiveness.

Materials and Methods

Study Design and Setting

This study employed a quantitative, descriptive-verificative design with a cross-sectional survey to examine the associations of service factors, operational factors, market competition, and health policy with declining patient visits. The study was conducted at Marina Permata Hospital, Tanah Bumbu Regency, South

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

Kalimantan, Indonesia. The hospital was selected purposively for theoretical rather than merely empirical reasons: it is a private hospital operating in a regency-level market outside Java under the JKN scheme, and it experienced a period of growth followed by a sustained decline in utilization (**Figure 1**). This setting allows internal and external explanations of declining patient visits to be examined within a single institutional context.

Study Population and Sample

The study population comprised patients and family members who used outpatient or inpatient services at Marina Permata Hospital during the study period. Participants were selected using non-probability purposive sampling based on predefined inclusion and exclusion criteria. The inclusion criteria were: (1) aged ≥17 years; (2) had used hospital services at least twice (the current visit and at least one previous visit), enabling them to evaluate their service experience; (3) fully conscious and able to communicate; and (4) willing to participate and provide informed consent. Participants were excluded if they were in an emergency or critical condition, had cognitive impairment or severe mental disorders that interfered with questionnaire completion, or returned substantially incomplete questionnaires.

The minimum sample size was determined using Cochran's formula for estimating a population proportion with a 95% confidence level and a 5% margin of error. Because no prior estimate of the proportion of patients reporting reduced utilization was available, a conservative proportion of p = 0.50 was assumed, which maximizes the required sample size. The calculation yielded a minimum of 384.16, rounded up to 385 respondents. To allow for potentially incomplete responses, 400 respondents were recruited. All 400 questionnaires met the completeness criteria and were retained for analysis (completion rate 100%).

Purposive sampling and the requirement of at least two hospital visits may introduce selection bias. Patients who had already stopped using the hospital after a negative experience could not be reached in the hospital setting and were therefore under-represented, which may have led to an underestimation of dissatisfaction and an attenuation of the observed associations, particularly for service factors. To mitigate this risk, respondents were recruited from both outpatient and inpatient services and across payment categories, and the sample included patients ranging from those with a single previous visit to frequent users (**Table 1**). The implications of this potential bias are considered in the interpretation of the findings and in the limitations.

Study Variables and Operational Definitions

The study included four independent variables and one dependent variable. Service factors (X1) and operational factors (X2) represented internal hospital factors, whereas market competition (X3) and health policy (X4) represented external factors. The dependent variable was declining patient visits (Y).

Service factors were measured according to patients' perceptions of hospital service quality across the five SERVQUAL dimensions of tangibility, reliability, responsiveness, assurance, and empathy [11]. Operational factors covered the availability and competence of human resources, the availability of medicines and medical equipment, waiting times, service flow, administrative processes, and BPJS/insurance-related procedures. Market competition included the perceived growth in competing healthcare facilities, differences in competitors' services, competitors' promotional activities, and changes in community preferences. Health policy included the referral system, tariff and INA-CBG claim policies, BPJS Kesehatan credentialing and re-credentialing, and the KRIS policy.

Declining patient visits were operationalized as a reduction in the intensity of hospital utilization, assessed through four indicators: reduced visit frequency, reduced intention to revisit, increased tendency to switch to other healthcare facilities, and reduced willingness to recommend the hospital. These indicators were treated as a single construct on the basis of the behavioural-intentions framework, in which repurchase (revisit), switching, and word-of-mouth recommendation represent complementary manifestations of a customer's favourable or unfavourable behavioural response to a service provider [33]. Reduced visit frequency captures the behavioural expression of the same disposition. The high internal consistency of the four indicators (Cronbach's α = 0.867) supports their combination into a composite score. Because the dependent variable was measured at the individual level, actual hospital-level visit data (2021–2025) were used for descriptive triangulation, that is, to verify that the perceived decline reported by respondents corresponded to an observed decline in utilization (**Figure 1**). These records were not linked to individual responses and were not included in the regression model.

All questionnaire items were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), with items for the dependent variable worded so that higher scores indicated a stronger tendency

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

toward reduced utilization. The questionnaire was developed from indicators derived from the theoretical constructs and previous studies, particularly established measures of service quality and behavioural intentions [11,33]. Mean scores were classified into five categories using an interval width of 0.80: very low (1.00–1.80), low (1.81–2.60), moderate (2.61–3.40), high (3.41–4.20), and very high (4.21–5.00).

Data Sources and Data Collection

Both primary and secondary data were used. Primary data were collected using a structured, self-administered questionnaire completed by the 400 eligible patients or family members. To complement the survey, brief structured interviews were conducted with key hospital management personnel, including the director or deputy director of services, the head of medical services, the head of finance, the head of medical records, and the officer responsible for BPJS Kesehatan claims. The interviews provided contextual information on changes in patient visits, health-policy changes, and competitive dynamics in the hospital's service area; they were used only as supporting contextual information and were not analysed statistically.

Secondary data were obtained from official hospital documents, including outpatient and inpatient visit reports, hospital service indicators, the ten most common diagnoses, BPJS Kesehatan claim reports, the hospital profile, and the business strategic plan. Additional information on the healthcare service environment was obtained from official publications of the Tanah Bumbu District Health Office and Statistics Indonesia. These data were used to verify actual trends in patient visits and to describe the healthcare market in the study area.

Instrument Testing

Before the main survey, the questionnaire was pilot-tested with 30 respondents outside the study sample who had characteristics similar to those of the target population. Item validity was assessed using Pearson product–moment correlations between individual item scores and total construct scores; items were considered valid when the correlation exceeded the critical r value at the 5% significance level and was ≥0.30. Items that did not meet these criteria were revised or removed before the main data collection. Internal consistency was evaluated using Cronbach's alpha, with coefficients ≥0.70 considered acceptable.

Data Processing

Questionnaire data were processed through editing, coding, scoring, data entry, cleaning, and tabulation. Data cleaning included checks for data-entry errors, outliers, and missing observations. Randomly missing observations accounting for less than 5% of items were handled by casewise deletion, whereas questionnaires with more than 10% missing items were excluded from the analysis.

Before inferential analysis, ordinal Likert-scale responses were transformed into interval-scale values using the Method of Successive Intervals (MSI). In this procedure, the frequency of each response category is converted into a cumulative proportion; the corresponding standard normal deviate (Z) and density value are then determined for each category boundary, and each category is assigned a scale value equal to the difference in densities divided by the difference in cumulative proportions, rescaled so that the lowest category equals 1. The MSI was adopted to satisfy the interval-level measurement assumption of ordinary least squares (OLS) regression. Methodological studies indicate that parametric analyses of summated Likert scores are generally robust in samples of this size [34,35]; the MSI transformation was therefore regarded as a conservative measurement choice rather than a prerequisite for valid inference. All analyses were performed using IBM SPSS Statistics version xx (IBM Corp., Armonk, NY, USA) and the MSI procedure in Microsoft Excel.

Statistical Analysis

Descriptive analysis was performed to describe respondent characteristics and the distribution of responses for each study variable. Categorical data were presented as frequencies and percentages, and continuous data as means and standard deviations. The hypothesized associations were examined using multiple linear regression, specified as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

where Y represents declining patient visits, $X1$ service factors, $X2$ operational factors, $X3$ market competition, and $X4$ health policy; α is the constant, β_1–β_4 are the regression coefficients, and ε is the error

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

term. Partial associations were evaluated with *t*-tests and the joint association of the four predictors with the *F*-test, at a significance level of $p < 0.05$. The coefficient of determination (R^2) and adjusted R^2 were used to assess the proportion of variance in declining patient visits associated with the model, and overall effect size was expressed as Cohen's $f^2 = R^2/(1 - R^2)$, with values of 0.02, 0.15, and 0.35 interpreted as small, medium, and large, respectively [36].

The dominant factor was identified using standardized beta coefficients and complementary relative-importance indices. Because beta coefficients alone do not partition explained variance, Pratt's product measure ($d_j = \beta_j \times r_j$, where r_j is the zero-order correlation between predictor *j* and the outcome) was calculated; the Pratt measures sum exactly to R^2 and can be interpreted as the share of explained variance attributable to each predictor [37]. A negative Pratt value arises when the sign of β_j differs from that of r_j; it does not indicate a negative contribution to R^2 but signals a suppression pattern, and values close to zero should be interpreted as negligible importance [37]. As an alternative index, squared semi-partial correlations ($sr^2 = t^2[1 - R^2]/[n - k - 1]$), which represent the unique variance associated with each predictor, and local effect sizes (partial $f^2 = t^2/[n - k - 1]$) were also computed [36,38].

Because the coefficient for operational factors was opposite in sign to its zero-order correlation, a suppression analysis was performed [39]. The zero-order correlations, the bivariate coefficients, a reduced model containing only service and operational factors, and the full model were compared to examine how the operational coefficient changed when service factors were controlled. Reduced-model estimates were derived from the zero-order correlation matrix using standard OLS formulas.

Regression assumptions were assessed before inference. With n = 400, formal normality tests such as the Kolmogorov–Smirnov test are highly sensitive to trivial departures from normality; moreover, in large samples the sampling distribution of regression coefficients is approximately normal by the central limit theorem, irrespective of the residual distribution [40]. Residual normality was therefore evaluated primarily through histogram and normal probability (P–P) plot inspection, with the Kolmogorov–Smirnov test with Lilliefors correction reported as a supplementary check. Multicollinearity was assessed using tolerance and the variance inflation factor (VIF), with tolerance > 0.10 and VIF < 10 considered acceptable, while recognizing that moderate inter-predictor correlations may still affect coefficient stability [41]. Heteroskedasticity was assessed using the Breusch–Pagan test and inspection of standardized residual scatterplots.

Although the Breusch–Pagan test was not significant, HC3 heteroskedasticity-consistent standard errors were used for all inferential tests as a precaution, because conventional tests have limited power to detect some forms of heteroskedasticity and HC3 estimators perform well whether or not heteroskedasticity is present [42]. As an additional robustness check, 95% percentile confidence intervals were obtained from 5,000 bootstrap resamples. A sensitivity power analysis was also conducted to determine whether non-significant findings could be attributed to insufficient statistical power.

Ethical Considerations

Participation in the study was voluntary. Eligible participants received an explanation of the study objectives and procedures and participated only after providing informed consent. Questionnaires were anonymous, and the data obtained were used solely for research purposes. Hospital records and institutional information were used as supporting secondary data with the permission of hospital management.

Results and Discussion

Characteristics of Respondents

A total of 400 respondents participated in the study. **Table 1** presents their demographic and healthcare-utilization characteristics. The largest age group was 20–30 years (47.0%), followed by 31–40 years (26.0%), so that 73.0% of respondents were aged 20–40 years; the remaining 27.0% were aged 17–19 or older than 40 years. Senior high school or vocational school graduates formed the largest educational group (51.0%), and private-sector employees accounted for half of the sample (50.0%). Most respondents were JKN/BPJS Kesehatan participants (88.0%), whereas 12.0% were self-paying patients. In addition to the current visit, 47.0% of respondents had made one previous visit, 31.0% two to three previous visits, and 22.0% more than three previous visits. Respondents were recruited from outpatient (n = xx; xx%) and inpatient (n = xx; xx%) services.

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

Table 1. Characteristics of respondents (n = 400)

Characteristic	Category	n	%
Age	20–30 years	188	47.0
	31–40 years	104	26.0
	17–19 or >40 years	108	27.0
Education	Senior high/vocational school	204	51.0
	Bachelor's degree	60	15.0
	Other (basic, diploma, or postgraduate)	136	34.0
Occupation	Private-sector employee	200	50.0
	Other occupations	200	50.0
Payment status	JKN/BPJS Kesehatan	352	88.0
	Self-paying	48	12.0
Previous visits*	Once	188	47.0
	2–3 times	124	31.0
	>3 times	88	22.0
Total		**400**	**100.0**

*Number of visits before the current visit; all respondents had used the hospital at least twice, including the current visit.

As shown in **Table 1**, the sample was dominated by young and middle-aged adults and by JKN/BPJS Kesehatan participants. The high proportion of insured patients is relevant because the organization of healthcare financing and referral pathways shapes patterns of utilization [6,7]. These characteristics should be considered when interpreting the regression findings, particularly those concerning health policy.

Descriptive Findings of the Study Variables

The descriptive findings are summarized in **Table 2** and **Figure 2**. To keep the presentation concise, Table 2 reports the overall score of each variable together with the indicators that obtained the lowest mean scores within each variable, because these indicators identify the most actionable areas for improvement. Overall, service factors obtained a mean score of 3.64, which falls in the high category. However, physician schedule accuracy and emergency-service speed received lower mean scores (3.38), within the moderate category.

Table 2. Descriptive findings of selected study indicators

Variable	Indicator	Mean	Category
Service factors	Overall service factor	3.64	High
	Physician schedule accuracy	3.38	Moderate
	Emergency-service speed	3.38	Moderate
Operational factors	Specialist availability according to schedule	3.23	Moderate
	Registration waiting time	3.05	Moderate
	Outpatient waiting time	3.04	Moderate (lowest)
Market competition	Other hospitals offer superior services	3.19	Moderate
	Alternative facilities sufficiently available	3.14	Moderate
Health policy	Overall health-policy factor (SD = 0.478)	3.67	High

Category criteria: 1.00–1.80 very low; 1.81–2.60 low; 2.61–3.40 moderate; 3.41–4.20 high; 4.21–5.00 very high. For each variable, the overall score and the lowest-scoring indicators are shown.

As shown in **Table 2** and **Figure 2**, the hospital was not generally perceived as providing poor service; rather, lower evaluations were concentrated in specific dimensions of reliability and operational efficiency. This distinction is important because recent evidence from an Indonesian private hospital found that tangibility and reliability were key determinants of patient satisfaction and that appropriate scheduling and shorter service and medication waiting times could strengthen revisit intention [31]. The operational findings are also consistent with Indonesian evidence identifying waiting time and process quality as the strongest determinants of outpatient satisfaction [17], as well as with studies showing that multiple service dimensions, including administrative processes and medication supply, jointly influence patient satisfaction [16]. The descriptive results therefore suggest that the hospital's challenge lies not in a generalized failure of service quality but in inconsistencies in several patient-facing service and operational processes.

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

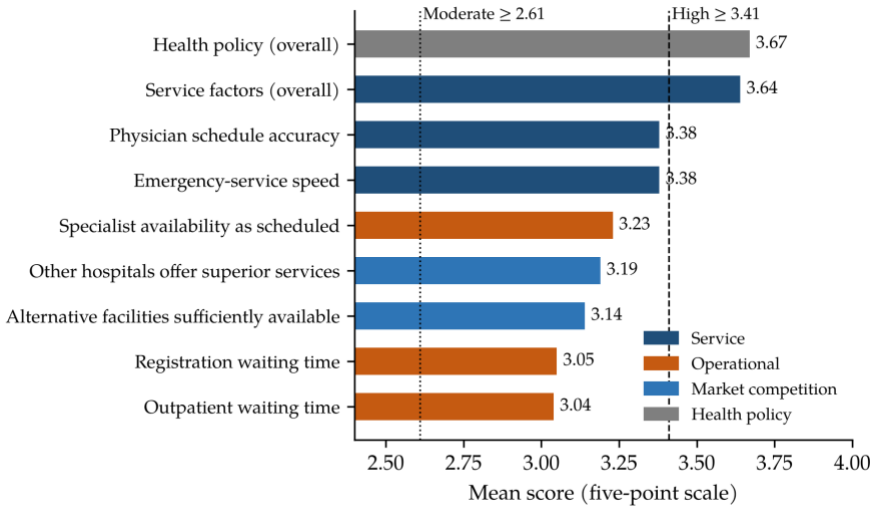


Figure 2. Mean scores of overall variables and the lowest-scoring indicators. Dashed and dotted lines indicate the lower bounds of the high (3.41) and moderate (2.61) categories, respectively.

Reliability, Assumption Tests, and the Regression Model

The measurement instruments demonstrated good internal consistency. Cronbach's alpha coefficients were 0.897 for service factors, 0.874 for operational factors, 0.866 for market competition, 0.913 for health policy, and 0.867 for declining patient visits, all exceeding the threshold of 0.70.

The regression diagnostics indicated no serious multicollinearity: tolerance values ranged from 0.523 to 0.937 and VIF values from 1.068 to 1.913, implying that no predictor shared more than approximately 48% of its variance with the other predictors. The Breusch–Pagan test did not indicate significant heteroskedasticity ($p = 0.129$). The histogram and normal P–P plot showed an approximately symmetric distribution of residuals along the diagonal given the sample size, inference is robust to minor departures from normality [40]. Significance decisions were identical under conventional OLS and HC3 standard errors, and the 5,000-sample bootstrap percentile confidence intervals led to the same inferential conclusions for all four predictors. The main regression results are presented in **Table 3** and **Figure 3**.

Table 3. Multiple linear regression analysis of factors associated with declining patient visits

Predictor	B	SE	β	t	p-value	95% CI (HC3)
Service factors (X1)	−0.175	0.033	−0.289	−5.314	<0.001	−0.240 to −0.110
Operational factors (X2)	0.159	0.043	0.202	3.710	<0.001	0.075 to 0.244
Market competition (X3)	**0.557**	**0.039**	**0.579**	**14.221**	**<0.001**	**0.480 to 0.634**
Health policy (X4)	−0.014	0.050	−0.014	−0.278	0.781	−0.114 to 0.086

B = unstandardized coefficient; SE = HC3 heteroskedasticity-robust standard error; β = standardized coefficient; CI = confidence interval. Model statistics: $F(4, 395) = 62.404$; $p < 0.001$; $R = 0.622$; $R^2 = 0.387$; adjusted $R^2 = 0.381$; Cohen's $f^2 = 0.63$.

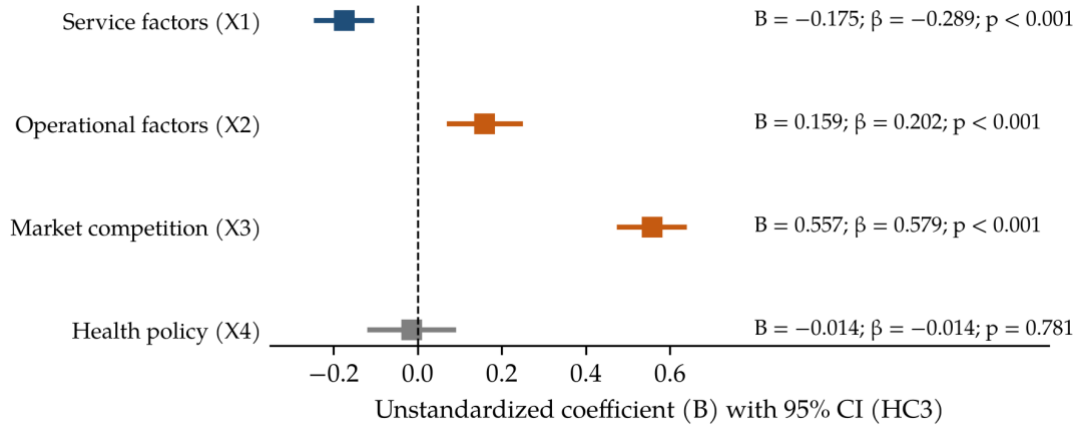


Figure 3. Unstandardized regression coefficients (B) with 95% confidence intervals based on HC3 robust standard errors.

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

As shown in **Table 3**, the overall regression model was statistically significant ($F = 62.404$; $p < 0.001$). The R^2 value of 0.387 indicates that the four predictors were jointly associated with 38.7% of the variance in declining patient visits (adjusted $R^2 = 0.381$), corresponding to a large overall effect size ($f^2 = 0.63$) [36], whereas 61.3% of the variance was associated with factors not included in the model. Service factors, operational factors, and market competition were statistically significant, whereas health policy was not (**Figure 3**).

Service Factors and Declining Patient Visits

As shown in **Table 3**, service factors were significantly and negatively associated with declining patient visits ($B = -0.175$; $SE = 0.033$; $\beta = -0.289$; $t = -5.314$; $p < 0.001$; partial $f^2 = 0.07$). Therefore, H1 was supported. The negative coefficient indicates that better perceived service quality was associated with a weaker tendency toward reduced utilization. This finding is consistent with recent evidence from Indonesian hospitals showing that service-quality dimensions, particularly tangibility and reliability, are important determinants of patient satisfaction, perceived value, and revisit intention [12,14,31], and with international evidence linking medical service quality to revisit intention [13].

The indicator-level results in **Table 2** provide additional insight. Although the overall service factor was rated high, physician schedule accuracy and emergency-service speed each had a mean score of only 3.38. Patients may therefore evaluate the hospital positively overall while still experiencing specific inconsistencies in service delivery. Reliability is particularly important because predictable scheduling and service processes shape both satisfaction and the intention to return; Saadi and Junadi similarly identified reliability and patient scheduling as priority areas for improving outpatient revisit intention [31]. The managerial implication is therefore not to improve service quality in general, but to reduce variability in the specific services that patients experience directly, particularly physician scheduling and emergency responsiveness.

Operational Factors and Declining Patient Visits

As shown in **Table 3**, operational factors were significantly associated with declining patient visits in the multivariable model ($B = 0.159$; $SE = 0.043$; $\beta = 0.202$; $t = 3.710$; $p < 0.001$; partial $f^2 = 0.03$). Thus, H2 was statistically supported. However, the positive coefficient is opposite to the theoretically expected direction and must be interpreted with caution. The suppression analysis is summarized in **Table 4**.

Table 4. Suppression analysis of the operational-factor coefficient

Model	β Service (X1)	β Operational (X2)	R^2	Interpretation
Zero-order (bivariate) association	−0.197***	−0.027 (n.s.)	–	Reference
Model A: operational factors only	–	−0.027 (n.s.)	0.001	No association
Model B: service + operational factors	−0.310***	0.174**	0.056	Suppression
Model C: full model (X1–X4)	−0.289***	0.202***	0.387	Stable

**p < 0.01; ***p < 0.001.

Model A and Model B estimates were derived from the zero-order correlation matrix ($r_{X1Y} = -0.197$; $r_{X2Y} = -0.027$; $r_{X1X2} = 0.650$) using ordinary least squares; Model C is the full model reported in Table 3. n.s. = not significant.

Table 4 shows that operational factors had a negligible and non-significant zero-order association with declining patient visits ($r = -0.027$; $p = 0.587$). The coefficient became positive and significant only when service factors were controlled (Model B: $\beta = 0.174$; $p = 0.007$), and it remained of similar magnitude in the full model ($\beta = 0.202$). Simultaneously, the service coefficient became more negative after adjustment for operational factors (from $\beta = -0.197$ to -0.310). This pattern corresponds to classical (negative) suppression: because operational and service ratings are strongly correlated ($r = 0.650$), they share a common component that reflects a general favourable evaluation of the hospital [39]. When this shared component is removed, the residual operational score captures variance that is unrelated to overall satisfaction, and this residual is weakly and positively associated with the outcome. One plausible substantive interpretation is that respondents who were particularly familiar with operational procedures, such as BPJS administration and registration routines, were also frequent users who were more aware of, and more exposed to, alternative providers. However, this explanation cannot be tested with the present data.

Several observations argue against attributing this result solely to unstable estimation. The maximum VIF was 1.913, well below conventional thresholds, and the operational coefficient remained of similar magnitude across Models B and C, indicating that it was not sensitive to the inclusion of market competition

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

and health policy [41]. Nevertheless, a correlation of 0.650 between two predictors is substantial, and suppressor coefficients are known to be sample-dependent. The positive coefficient should therefore not be interpreted as evidence that better operational performance causes patient visits to decline; it is more appropriately understood as a statistical consequence of the overlap between service and operational evaluations. Future studies should test this pattern using confirmatory factor analysis to establish the discriminant validity of the two constructs, or by modelling them as indicators of a higher-order construct.

Regardless of the direction of the adjusted coefficient, the descriptive findings in **Table 2** identify operational issues that warrant managerial attention. Outpatient waiting time had the lowest mean score (3.04), followed by registration waiting time (3.05) and specialist availability according to schedule (3.23). This pattern is consistent with Indonesian evidence showing that waiting time and process quality are dominant determinants of outpatient satisfaction [17]. Similarly, Pratiwi and Sumiati demonstrated that process optimization, digital queuing systems, standardization, and staff training can reduce non-value-added activities and improve the efficiency of healthcare services [43]. Waiting-time reduction and process reliability therefore remain important operational priorities.

Market Competition and Declining Patient Visits

Market competition emerged as the dominant factor. As shown in **Table 3**, it had the largest standardized coefficient ($\beta = 0.579$; $t = 14.221$; $p < 0.001$; partial $f^2 = 0.51$). Its relative importance is presented in **Table 5** and **Figure 4**.

Table 5. Relative importance of predictors of declining patient visits

Predictor	r	β	Pratt measure (%)	sr^2 (%)	Partial f^2
Service factors	−0.197	−0.289	5.69	4.38	0.072
Operational factors	−0.027	0.202	−0.55	2.14	0.035
Market competition	**0.581**	**0.579**	**33.64**	**31.39**	**0.512**
Health policy	0.036	−0.014	−0.05	0.01	<0.001
Total (R^2)			**38.70**		

r = zero-order correlation; β = standardized coefficient; Pratt measure = β × r, whose values sum to R^2; sr^2 = squared semi-partial correlation (unique variance); partial f^2 = local effect size. Negative Pratt values indicate a sign difference between β and r (suppression) and should be interpreted as negligible importance rather than as a negative contribution to R^2.

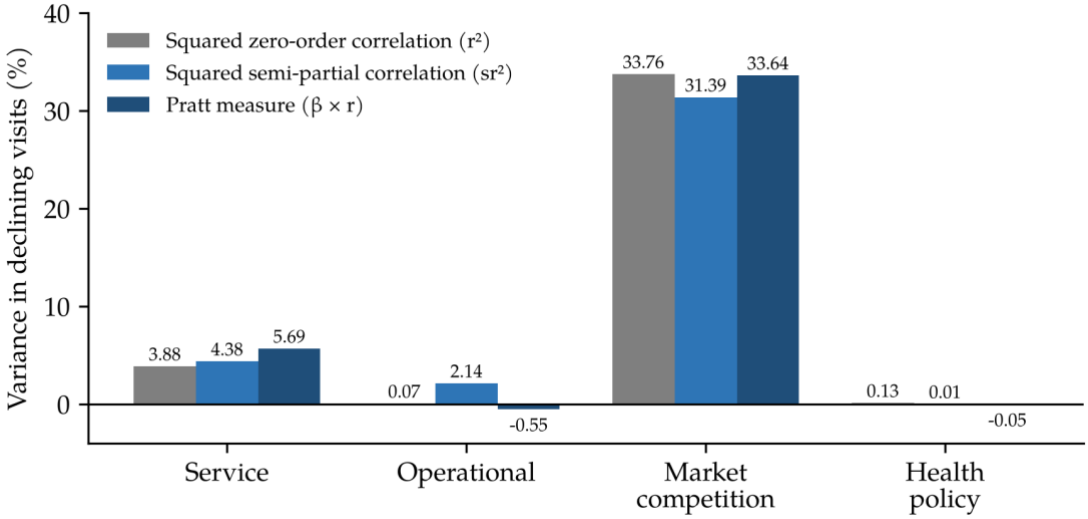


Figure 4. Comparison of relative-importance indices for the four predictors of declining patient visits.

As shown in **Table 5**, market competition accounted for 33.64 of the 38.70 percentage points of explained variance according to Pratt's measure, substantially exceeding the contribution of service factors (5.69 percentage points). The alternative index led to the same conclusion: market competition uniquely accounted for 31.39% of the variance (sr^2), compared with 4.38% for service factors and 2.14% for operational factors (**Figure 4**). The convergence of three indices confirms that the dominance of market competition is not an artefact of a particular importance metric [37,38]. These findings indicate that declining patient visits were

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

more strongly associated with the hospital's competitive environment than with a generalized perception of poor service quality.

The descriptive findings support this interpretation. Respondents agreed that alternative healthcare facilities were sufficiently available (mean = 3.14) and that other hospitals offered superior services (mean = 3.19). The salience of competition can be understood in light of the local market structure. Tanah Bumbu is a regency on the south-eastern tip of South Kalimantan in which the regency-owned public hospital, primary-care clinics, and higher-level referral hospitals in the Banjarbaru–Banjarmasin area constitute the main alternatives to Marina Permata Hospital. In a market of this size, improvements in the capacity, facilities, or specialist mix of even one competing provider can noticeably redirect patient flows. Furthermore, under JKN, tariffs for insured patients are standardized across providers, so price differences play only a minor role, and non-price attributes such as reputation, specialist availability, facilities, waiting time, and accessibility become the main basis of choice [22,27]. This interpretation is consistent with theoretical work showing that the distribution of patients across hospitals can arise from rational patient choice in response to differences in perceived quality, capacity constraints, congestion, and preferences [44], as well as with evidence that hospital brand image is associated with revisit intention in South Kalimantan [29].

A methodological consideration should also be noted. Several market-competition items, such as the perception that other hospitals offer superior services, are conceptually close to the switching component of the dependent variable. This proximity, together with the fact that all constructs were measured with the same instrument, may have inflated the association between market competition and declining patient visits relative to more distal constructs such as health policy [45]. The magnitude of the competition effect should therefore be interpreted as an upper-bound estimate, and future studies should complement perception-based measures with objective indicators of market structure, such as the number of competing beds and travel times.

The implication is that competition should not be viewed simply as an external threat. Rather, it creates a context in which patients actively compare providers, so that the hospital must maintain not only acceptable service quality but also a relative value proposition that is attractive compared with competing facilities [28].

Health Policy and Declining Patient Visits

As shown in **Table 3**, health policy was not significantly associated with declining patient visits (B = −0.014; SE = 0.050; β = −0.014; t = −0.278; p = 0.781). Therefore, H4 was not supported. Its local effect size was negligible (partial $f^2 < 0.001$), and its unique contribution to explained variance was 0.01% (**Table 5**).

The lack of statistical significance should not be interpreted as evidence that health policy is irrelevant to hospital utilization. A sensitivity power analysis showed that, with n = 400 and four predictors, the study had approximately 81% power to detect a small partial effect ($f^2 = 0.02$) at $\alpha = 0.05$; a lack of power to detect small effects is therefore an unlikely explanation for the non-significant result. A more plausible explanation lies in the limited variation of health-policy perceptions. The health-policy variable had a high mean score (3.67) and a small standard deviation (0.478), corresponding to a coefficient of variation of only 13.0%, indicating that respondents evaluated policy-related aspects in a relatively uniform manner. This homogeneity is consistent with the composition of the sample: because 88.0% of respondents were JKN participants, most were exposed to the same referral rules, tariff arrangements, and inpatient-class policies.

More fundamentally, health policy operates as a contextual factor that affects all providers in the market simultaneously. Referral rules, INA-CBG tariffs, and KRIS requirements apply equally to Marina Permata Hospital and its competitors [10,30], so that individual differences in perceptions of these policies are unlikely to explain why some patients reduce their use of a particular hospital. Policy effects are therefore more appropriately examined at the hospital or system level, for example through multi-hospital comparisons or interrupted time-series analyses of referral volumes and claims [9]. A subgroup analysis comparing JKN participants with self-paying patients would also be informative; however, with only 48 self-paying respondents, such an analysis would have been underpowered, and it is recommended for future studies with stratified sampling.

Integrated Interpretation

The overall pattern of associations is summarized in **Figure 5**.

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

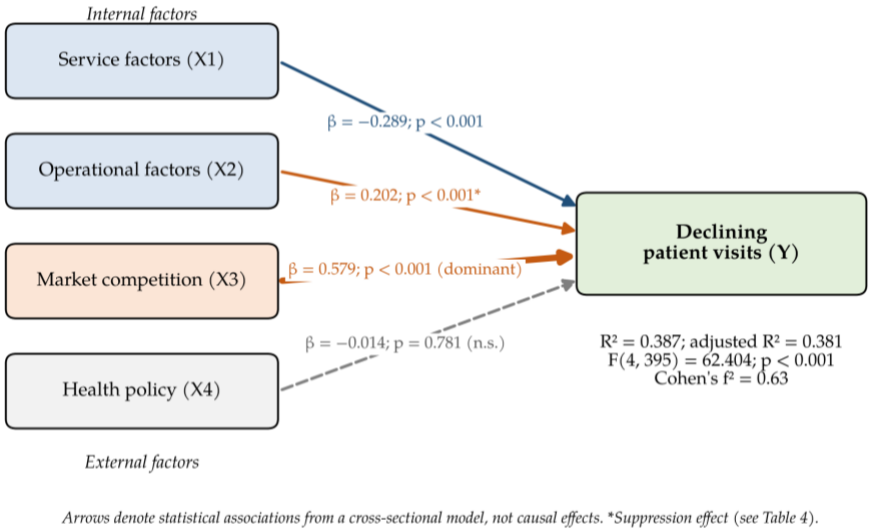


Figure 5. Integrated summary of the associations between the four predictors and declining patient visits. Solid arrows indicate significant associations; the dashed arrow indicates a non-significant association. The figure summarizes statistical associations and does not represent a causal model.

As illustrated in **Figure 5**, the four predictors were not equally associated with declining patient visits. Market competition showed the strongest positive association, service factors showed a significant negative association, operational factors showed a significant positive coefficient attributable to statistical suppression, and health policy showed no significant association. Taken together, **Tables 2–5** and **Figures 2–5** lead to a coherent interpretation: the hospital was not characterized by generally poor perceived service quality; instead, the principal concern was its position relative to alternative providers. This interpretation is supported by the high overall service score (**Table 2**) and by the dominant share of explained variance attributable to market competition (**Table 5**). The decline in patient visits therefore appears to be more strongly associated with relative competitive pressure than with absolute service quality.

Managerial Implications

The findings indicate three managerial priorities, which are summarized together with their supporting evidence and indicative implementation requirements in **Table 6**.

Table 6. Proposed priority matrix for addressing declining patient visits

Proposed action	Supporting evidence	Expected impact	Feasibility	Main requirements
Competitive differentiation (flagship services, extended hours, brand building)	Market competition: β = 0.579; Pratt = 33.64%	High	Low–moderate	Capital, specialist recruitment, top-management commitment
Specialist schedule reliability and patient notification	Schedule accuracy = 3.38; specialist availability = 3.23	Moderate–high	High	Roster policy, physician engagement
Online appointments and digital queue management	Outpatient waiting = 3.04; registration waiting = 3.05	Moderate	Moderate	IT investment, staff training
Emergency response-time standards	Emergency-service speed = 3.38	Moderate	Moderate	Staffing, triage protocol, monitoring
Monitoring of referral and claim trends	Health policy: not significant at patient level	Low (contextual)	High	Routine data analysis by management

Priority ranking is based on the magnitude of the associated findings (expected impact) and on indicative resource requirements (feasibility).

First, the hospital should maintain its relatively high overall level of service quality while addressing specific weaknesses in physician schedule accuracy and emergency-service responsiveness, which received comparatively lower scores (**Table 2**). Practical measures include binding specialist duty rosters, advance notification of schedule changes to patients, and response-time standards for the emergency department.

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

Second, operational improvements should focus on outpatient waiting time, registration waiting time, and the reliability of specialist schedules, which were among the weakest operational indicators. Online appointment booking, digital queue management, and a dedicated JKN administrative desk could reduce non-value-added waiting time [17,43].

Third, the strongest strategic priority should be competitive differentiation. Because market competition accounted for the largest share of explained variance (**Table 5**), improving internal service quality alone may not be sufficient when patients have several alternative providers [44]. Marina Permata Hospital should develop a clear value proposition based on services that are highly valued by its target patients and difficult for competitors to replicate. Concrete options include developing flagship service lines in specialties that are under-supplied in the regency, extending outpatient hours to evenings or weekends to accommodate working patients (half of the respondents were private-sector employees), guaranteeing specialist availability for scheduled appointments, and strengthening hospital brand image and community engagement [28,29]. A systematic competitor analysis, covering service lines, specialists, facilities, and travel times, should precede the selection of differentiation strategies.

The feasibility of these implications depends on organizational resources. Developing new service lines requires capital investment and the recruitment of specialists, both of which are constrained in regency-level areas; digital queuing and appointment systems require information-technology investment and staff training; and changes to physician scheduling may encounter professional resistance. Implementation should therefore be phased, beginning with low-cost, high-impact process measures (scheduling discipline and queue management), followed by medium-term investments in service differentiation, and supported by explicit commitment from top management, adequate budget allocation, and the monitoring of patient-visit indicators.

Limitations

This study has several limitations. First, its cross-sectional design permits the identification of associations but not causal relationships, and reverse causality cannot be excluded; for example, patients who had already reduced their use of the hospital may subsequently have evaluated its services less favourably. Longitudinal or quasi-experimental designs are needed to establish temporal ordering. Second, the dependent variable was measured through respondents' perceptions and intentions rather than through individual utilization records; although the observed hospital-level decline corroborates the perceived decline, perception-based measures may not fully represent actual behaviour.

Third, all variables were measured with a single self-administered questionnaire at one point in time, so common method variance cannot be excluded [45]. The pattern of results is not consistent with a single dominant method factor, because two predictors (operational factors and health policy) showed near-zero correlations with the outcome and no predictor shared more than about 48% of its variance with the others; nevertheless, procedural remedies and statistical tests, such as Harman's single-factor test or a marker-variable approach, should be applied in future studies. Fourth, construct validity was assessed through item–total correlations and internal consistency, but confirmatory factor analysis was not performed; the convergent and discriminant validity of the constructs, particularly between service and operational factors, should therefore be established in future research. Fifth, because questionnaires were completed by current users, social desirability bias may have led to more favourable evaluations; the use of anonymous questionnaires was intended to reduce this risk.

Sixth, purposive sampling and the requirement of at least two visits may have excluded patients who had already switched to other providers, possibly attenuating the observed associations. Seventh, the study was conducted in a single private hospital in one regency, so the findings may not be generalizable to public hospitals, to private hospitals in large cities, or to regions with different market structures; multi-site studies are recommended. Finally, the model was associated with 38.7% of the variance in declining patient visits, indicating that other potential determinants, such as patient satisfaction, hospital image, perceived value, trust, accessibility, physician reputation, and patient loyalty, should be incorporated in future models.

Conclusions

In this private hospital in a regency-level market in South Kalimantan, market competition was the dominant factor associated with declining patient visits ($\beta = 0.579$; $p < 0.001$), accounting for 33.64 of the 38.7

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

percentage points of explained variance. Better perceived service quality was associated with a weaker tendency toward reduced utilization ($\beta = -0.289$; $p < 0.001$), whereas the positive coefficient for operational factors ($\beta = 0.202$; $p < 0.001$) reflected statistical suppression arising from their overlap with service factors rather than an adverse effect of operational performance. Health policy was not significantly associated with declining patient visits, most likely because policies apply uniformly to all providers and were perceived homogeneously by respondents. These findings imply that competitive strategy should be the primary priority for sustaining patient visits, whereas improvements in service reliability and waiting times remain necessary but are unlikely to be sufficient on their own. Because the findings are specific to the context of Marina Permata Hospital, they require validation in other hospitals and regions, and longitudinal studies are needed to confirm the direction of the observed associations.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the research, authorship, and publication of this article.

Acknowledgment

The authors would like to express their sincere appreciation to the management and healthcare staff of Marina Permata Hospital, Tanah Bumbu, South Kalimantan, for their permission, cooperation, and support throughout the research process. The authors also thank all respondents who voluntarily participated and provided valuable information for this study. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Supplementary Materials

No supplementary materials are provided for this study.

References

[1] Gumilar F, Mentari I, Purwadhi P, Widjadja YR. Orientasi strategik dan keunggulan kompetitif rumah sakit: tinjauan literatur dan implikasi manajerial. Optimal J Ekon Manaj 2026;6:638–52. https://doi.org/10.55606/optimal.v6i2.10996.

[2] Santika M, Paramarta V, Somba I. Pentingnya penerapan strategik manajemen di rumah sakit: kajian teoritis. J Ilmu Kedokt Kesehat Indones 2023;3:178–85. https://doi.org/10.55606/jikki.v3i3.2172.

[3] Zhang J, Li Y, Qu H, Chen P. An analysis of operational efficiency and its influencing factors in traditional Chinese medicine hospitals in Shaanxi Province, China. Front Public Health 2025;13:1499134. https://doi.org/10.3389/fpubh.2025.1499134.

[4] Yetim B, Ilgün G, Konca M, Şahin B. Efficiency assessment of healthcare resources: an in-depth exploration using SFA, DEA, and capacity utilization indicators. World Med Health Policy 2025;17:650–57. https://doi.org/10.1002/wmh3.70027.

[5] Agustina R, Dartanto T, Sitompul R, Susiloretni KA, Suparmi, Achadi EL, et al. Universal health coverage in Indonesia: concept, progress, and challenges. Lancet 2019;393:75–102. https://doi.org/10.1016/S0140-6736(18)31647-7.

[6] Erlangga D, Ali S, Bloor K. The impact of public health insurance on healthcare utilisation in Indonesia: evidence from panel data. Int J Public Health 2019;64:603–13. https://doi.org/10.1007/s00038-019-01215-2.

[7] Rahmawati T, Hsieh H-M. Appraisal of universal health insurance and maternal health services utilization: pre- and post-context of the Jaminan Kesehatan Nasional implementation in Indonesia. Front Public Health 2024;12:1301421. https://doi.org/10.3389/fpubh.2024.1301421.

[8] Arofah AN, Noor VMM, Setyawan FEB, Shihab DAS. Dampak akibat implementasi program JKN terhadap biaya kesehatan di fasilitas kesehatan tingkat lanjutan. CoMPHI J 2022;3:64–72. https://doi.org/10.37148/comphijournal.v3i2.104.

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

[9] Sambodo NP, Bonfrer I, Sparrow R, Pradhan M, van Doorslaer E. Effects of performance-based capitation payment on the use of public primary health care services in Indonesia. Soc Sci Med 2023;327:115921. https://doi.org/10.1016/j.socscimed.2023.115921.

[10] Wirajaya MKM, Tunas IK, Farmani PI, Laksmini PA. Determinan kepuasan peserta JKN terhadap sistem rujukan berjenjang di Provinsi Bali. J Ekon Kesehat Indones 2026;11:3. https://doi.org/10.7454/eki.v11i1.1177.

[11] Parasuraman A, Zeithaml VA, Berry LL. SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. J Retail 1988;64:12–40.

[12] Noviyani A, Viwattanakulvanid P. Service quality as a driver of perceived value satisfaction and revisit intention in Indonesia. Sci Rep 2025;15:43363. https://doi.org/10.1038/s41598-025-29414-3.

[13] Woo S, Choi M. Medical service quality, patient satisfaction and intent to revisit: case study of public hub hospitals in the Republic of Korea. PLoS One 2021;16:e0252241. https://doi.org/10.1371/journal.pone.0252241.

[14] Hidayat AS, Handoyo SE. The effect of service quality and patient satisfaction on revisit intentions of inpatients at Ciawi Regional Public Hospital mediated by patient trust. J Humanit Soc Stud 2025;9:359–65. https://doi.org/10.33751/jhss.v9i2.12086.

[15] Priyanto EB, Rahayuningsih E, Anggiani S. The impact of hospital service technology and service quality on patient revisit intention: mediating role of patient experience. Paradoks J Ilmu Ekon 2025;8:209–23. https://doi.org/10.57178/paradoks.v8i3.1375.

[16] Hartanti LK, Antonio F. The effect of service quality dimensions on hemodialysis patient satisfaction in Indonesia. J Adm Kesehat Indones 2022;10:50–59. https://doi.org/10.20473/jaki.v10i1.2022.50-59.

[17] Norsaputera E, Hamzah H, Harun L. Determinants of outpatient satisfaction in regional public hospitals: the dominant role of waiting time and process quality in Indonesia. Maj Kesehat Indones 2025;6:137–48. https://doi.org/10.47679/makein.2025274.

[18] Fazria NF, Dhamanti I. A literature review on the identification of variables for measuring hospital efficiency in the data envelopment analysis (DEA). Unnes J Public Health 2021;10:1–15. https://doi.org/10.15294/ujph.v10i1.38253.

[19] Kohl S, Schoenfelder J, Fügener A, Brunner JO. The use of data envelopment analysis (DEA) in healthcare with a focus on hospitals. Health Care Manag Sci 2019;22:245–86. https://doi.org/10.1007/s10729-018-9436-8.

[20] Zubir MZ, Noor AA, Mohd Rizal AM, Harith AA, Abas MI, Zakaria Z, et al. Approach in inputs & outputs selection of data envelopment analysis (DEA) efficiency measurement in hospitals: a systematic review. PLoS One 2024;19:e0293694. https://doi.org/10.1371/journal.pone.0293694.

[21] Victoor A, Delnoij DMJ, Friele RD, Rademakers JJDJM. Determinants of patient choice of healthcare providers: a scoping review. BMC Health Serv Res 2012;12:272. https://doi.org/10.1186/1472-6963-12-272.

[22] Kamra V, Singh H, De KK. Factors affecting hospital choice decisions: an exploratory study of healthcare consumers in Northern India. Asia Pac J Health Manag 2016;11:76–84. https://doi.org/10.24083/apjhm.v11i1.249.

[23] de Cruppé W, Geraedts M. Hospital choice in Germany from the patient's perspective: a cross-sectional study. BMC Health Serv Res 2017;17:720. https://doi.org/10.1186/s12913-017-2712-3.

[24] Peng Z, Laporte A, Wei X, Sha X, Coyte PC. Does hospital competition improve the quality of outpatient care? Empirical evidence from a quasi-experiment in a Chinese city. Health Econ Rev 2024;14:39. https://doi.org/10.1186/s13561-024-00516-4.

[25] Chandra A, Finkelstein A, Sacarny A, Syverson C. Health care exceptionalism? Performance and allocation in the US health care sector. Am Econ Rev 2016;106:2110–44. https://doi.org/10.1257/aer.20151080.

[26] Liu H, Jiang J, Yu L, Liu X. The impact of hospital competition on healthcare quality: evidence from China's healthcare reform. Front Public Health 2025;13:1543884. https://doi.org/10.3389/fpubh.2025.1543884.

[27] Salampessy BH, Ikkersheim D, Portrait FRM, Koolman X. Do patients' preferences prevail in hospital selection? A comparison between discrete choice experiments and revealed hospital choice. BMC Health Serv Res 2022;22:1136. https://doi.org/10.1186/s12913-022-08403-6.

[28] Budiman C, Achmadi H. The effect of marketing mix on patient satisfaction and their impact on patient loyalty in hospital inpatients. J Manaj Kesehat Indones 2023;11:1–9.

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

https://doi.org/10.14710/jmki.11.1.2023.1-9.
[29] Fitriani F, Ifansyah MN, Zubaidah Z. Hubungan marketing mix dan hospital brand image dengan minat kunjungan ulang pasien di RSI Sultan Agung Banjarbaru. J ARSI 2026;12:3. https://doi.org/10.7454/arsi.v12i1.1235.
[30] Rizky W, Putri SAS, Prasetyo B, Rahardjoputro R, Muyasaroh A. Implementation of Standard Inpatient Class (KRIS) and hospital bed readiness. Indones J Hosp Adm 2026;9:1–11. https://doi.org/10.21927/ijhaa.2026.9(1).1-11.
[31] Saadi MT, Junadi P. Understanding outpatients' intention to revisit a hospital: a study using theory of planned behavior and satisfaction in an Indonesian hospital. Int J Pharm Healthc Mark 2025. https://doi.org/10.1108/IJPHM-01-2025-0003.
[32] Wenang S, Schaefers J, Afdal A, Gufron A, Geyer S, Dewanto I, et al. Availability and accessibility of primary care for the remote, rural, and poor population of Indonesia. Front Public Health 2021;9:721886. https://doi.org/10.3389/fpubh.2021.721886.
[33] Zeithaml VA, Berry LL, Parasuraman A. The behavioral consequences of service quality. J Mark 1996;60:31–46. https://doi.org/10.1177/002224299606000203.
[34] Norman G. Likert scales, levels of measurement and the "laws" of statistics. Adv Health Sci Educ 2010;15:625–32. https://doi.org/10.1007/s10459-010-9222-y.
[35] Wu H, Leung S-O. Can Likert scales be treated as interval scales? A simulation study. J Soc Serv Res 2017;43:527–32. https://doi.org/10.1080/01488376.2017.1329775.
[36] Selya AS, Rose JS, Dierker LC, Hedeker D, Mermelstein RJ. A practical guide to calculating Cohen's f^2, a measure of local effect size, from PROC MIXED. Front Psychol 2012;3:111. https://doi.org/10.3389/fpsyg.2012.00111.
[37] Thomas DR, Hughes E, Zumbo BD. On variable importance in linear regression. Soc Indic Res 1998;45:253–75. https://doi.org/10.1023/A:1006954016433.
[38] Tonidandel S, LeBreton JM. Relative importance analysis: a useful supplement to regression analysis. J Bus Psychol 2011;26:1–9. https://doi.org/10.1007/s10869-010-9204-3.
[39] MacKinnon DP, Krull JL, Lockwood CM. Equivalence of the mediation, confounding and suppression effect. Prev Sci 2000;1:173–81. https://doi.org/10.1023/A:1026595011371.
[40] Lumley T, Diehr P, Emerson S, Chen L. The importance of the normality assumption in large public health data sets. Annu Rev Public Health 2002;23:151–69. https://doi.org/10.1146/annurev.publhealth.23.100901.140546.
[41] Kim JH. Multicollinearity and misleading statistical results. Korean J Anesthesiol 2019;72:558–69. https://doi.org/10.4097/kja.19087.
[42] Hayes AF, Cai L. Using heteroskedasticity-consistent standard error estimators in OLS regression: an introduction and software implementation. Behav Res Methods 2007;39:709–22. https://doi.org/10.3758/BF03192961.
[43] Pratiwi DN, Sumiati S. Optimizing healthcare service efficiency through lean healthcare and root cause analysis. Acad Open 2025;10. https://doi.org/10.21070/acopen.10.2025.11570.
[44] Guccio C, Lisi D, Mazza I, Pignataro G. Patient selection or rational patient choice? Insights from a hospital competition model with heterogeneous agents. Econ Hum Biol 2026;61:101599. https://doi.org/10.1016/j.ehb.2026.101599.
[45] Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP. Common method biases in behavioral research: a critical review of the literature and recommended remedies. J Appl Psychol 2003;88:879–903. https://doi.org/10.1037/0021-9010.88.5.879.

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com