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Service Quality and Physical Facilities on Patient Satisfaction and Its Implications for Community Health Center Image: Digital Marketing as a Moderating Variable

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ABSTRACT

Patient satisfaction and institutional image remain critical challenges for community health centers (*Puskesmas*) across Cianjur Regency, Indonesia, where service quality and physical facilities are widely perceived as suboptimal. This study examines the effect of Service Quality and Physical Facilities on Patient Satisfaction and its implications for Puskesmas Image, with Digital Marketing as a moderating variable. A quantitative method combining descriptive and verificative approaches was applied through a survey of 400 patients across Puskesmas in Cianjur Regency, analyzed using *Structural Equation Modeling* (SEM). Descriptively, Service Quality, Physical Facilities, Puskesmas Image, and Digital Marketing were all rated as less than adequate, while Patient Satisfaction was rated as fairly satisfactory. Verificatively, Service Quality and Physical Facilities were found to simultaneously and partially affect Patient Satisfaction, which in turn significantly affects Puskesmas Image; Digital Marketing was proven to strengthen the effect of Patient Satisfaction on Puskesmas Image, acting as a quasi-moderator. These findings recommend that Puskesmas management substantively improve service quality and physical facilities as prerequisites for patient satisfaction, while optimizing digital marketing to strengthen institutional image among the public.

ABSTRAK

Kepuasan pasien dan citra kelembagaan masih menjadi tantangan utama bagi Puskesmas di Kabupaten Cianjur, di mana mutu pelayanan dan sarana prasarana fisik dipersepsikan belum optimal. Penelitian ini bertujuan menganalisis pengaruh Mutu Pelayanan dan Sarana Prasarana Fisik terhadap Kepuasan Pasien serta implikasinya pada Citra Puskesmas, dengan Pemasaran Digital sebagai variabel moderasi. Metode kuantitatif dengan pendekatan deskriptif dan verifikatif digunakan melalui survei terhadap 400 pasien Puskesmas di Kabupaten Cianjur, dianalisis menggunakan *Structural Equation Modeling* (SEM). Secara deskriptif, Mutu Pelayanan, Sarana Prasarana Fisik, Citra Puskesmas, dan Pemasaran Digital berada pada kriteria kurang baik, sedangkan Kepuasan Pasien berada pada kriteria cukup puas. Secara verifikatif, Mutu Pelayanan dan Sarana Prasarana Fisik terbukti berpengaruh secara simultan dan parsial terhadap Kepuasan Pasien, yang selanjutnya berpengaruh signifikan terhadap Citra Puskesmas; Pemasaran Digital terbukti memperkuat pengaruh Kepuasan Pasien terhadap Citra Puskesmas sebagai moderasi semu (*quasi moderator*). Temuan ini merekomendasikan agar pengelola Puskesmas meningkatkan mutu pelayanan dan sarana prasarana fisik secara nyata sebagai prasyarat kepuasan pasien, serta mengoptimalkan Pemasaran Digital untuk memperkuat citra kelembagaan di mata masyarakat.

Keywords: Service Quality, Physical Facilities, Patient Satisfaction, Puskesmas Image, Digital Marketing

INTRODUCTION

Public expectations for quality healthcare have risen sharply as health is increasingly regarded as a basic need on par with food and education. Patients today are more critical of the facilities, speed, and professionalism offered by healthcare providers, placing growing pressure on first-line public health institutions to raise their standards of service.

Puskesmas (community health centers), as the frontline of Indonesia's National Health Insurance (JKN) network, occupy a central role in this landscape. Based on Katadata Insight Center's processing of BPJS Kesehatan data as of January 2023, 27,659 healthcare facilities were registered within the JKN network, of which 10,281 units were Puskesmas, reflecting their wide distribution down to the village level. In Cianjur Regency, West Java, 47 Puskesmas were recorded in 2024, comprising 8 inpatient and 39 non-inpatient units. Against a population of roughly 2.58 million, this yields a ratio of only about 1.82 Puskesmas per 100,000 residents, well below the ideal coverage needed to serve a large and dispersed population.

In practice, the services provided by Puskesmas in Cianjur have not fully met patient expectations. Patients frequently report unfriendly initial service, unprofessional staff attitudes, limited facilities, medicine shortages,

and inadequate cleanliness, prompting some to switch to alternative clinics perceived as offering better care. Compounding these issues, the physical infrastructure of several Puskesmas was damaged by the November 2022 earthquake; Puskesmas Cugenang, for example, continued operating from emergency tents and temporary structures, illustrating a persistent gap between the ideal and actual condition of physical facilities in the region.

Patient satisfaction itself remains problematic, with long waiting times, particularly at general outpatient clinics and pharmacies, aggravated by staff shortages during peak hours, alongside staff attitudes perceived as unfriendly and uncommunicative. Because institutional image is understood as an enduring perception built cumulatively from patients' service experiences (Kotler & Keller, 2022), persistent dissatisfaction directly threatens the public image of Puskesmas as trustworthy healthcare providers. At the same time, *Digital Marketing* is increasingly viewed as a strategic channel through which clear, responsive, and consistent information can reinforce public trust, even where service quality or physical facilities remain constrained; conversely, underused digital channels risk widening information gaps and weakening the positive perception patients hold of Puskesmas.

Prior research on these relationships remains inconclusive. Regarding service quality, Rambon et al. (2022) found a significant effect of health service quality on patient satisfaction at Puskesmas Papakelan, whereas Hasrianty and Sudirman (2022) found no significant effect of service quality on patient satisfaction at Puskesmas Dolo, Sigi Regency. Similarly, for physical facilities, Molenaar et al. (2023) reported a meaningful relationship between physical facilities and patient satisfaction, while Ramli et al. (2024) found the partial effect of physical facilities on patient satisfaction to be non-significant. These contradictory findings constitute a research gap that this study seeks to address, specifically within the context of Cianjur's Puskesmas network.

Building on this background, the present study analyzes patients' perceptions of Service Quality, Physical Facilities, Patient Satisfaction, Puskesmas Image, and Digital Marketing, and tests the simultaneous and partial effects of Service Quality and Physical Facilities on Patient Satisfaction, as well as the extent to which Digital Marketing strengthens the effect of Patient Satisfaction on Puskesmas Image. The novelty of this study lies in positioning Digital Marketing as a moderating variable within the service quality-satisfaction-image chain in a public primary healthcare setting, a combination that remains underexplored in the existing literature on Puskesmas management.

METHODS

This study applies a quantitative method combining descriptive and verificative approaches (Sugiyono, 2022). The descriptive approach addresses patients' perceptions of Service Quality, Physical Facilities, Patient Satisfaction, Puskesmas Image, and Digital Marketing as standalone constructs, while the verificative approach tests the hypothesized causal relationships among these variables.

The research was conducted at Puskesmas across Cianjur Regency, West Java, from February 2024 to May 2025, covering data preparation and feasibility assessment (February-November 2024) followed by questionnaire distribution and collection (November 2024-May 2025). The population comprised patients of Puskesmas distributed across the regency's 32 sub-districts, with a total regional population of 2,610,316 in 2025. Applying the Slovin formula with a 5% margin of error yielded a minimum sample of 385 respondents, rounded up to 400 to strengthen representativeness. Respondents were selected through proportional random sampling by sub-district/Puskesmas so that the sample distribution reflected the population's geographic spread.

Data were collected through a closed-ended questionnaire comprising 96 items measured on a five-point ordinal Likert scale (1 = strongly disagree to 5 = strongly agree), covering five constructs: Service Quality (X1), operationalized through the *SERVQUAL* dimensions of tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1988), 23 items; Physical Facilities (X2), operationalized through spatial layout, room design, equipment and furniture, lighting and color, and supporting elements (Tjiptono, in Pitria, 2023), 16 items; Patient Satisfaction (Y), operationalized through performance and expectation (Kotler & Keller,

2022), 16 items; Puskesmas Image (Z), operationalized through personality, reputation, value, and corporate identity (Kotler & Keller, 2022), 15 items; and Digital Marketing (M), operationalized through website, search engine optimization (SEO), click-based advertising, affiliate marketing and strategic partnerships, online public relations, and social networking (Chaffey & Ellis-Chadwick, 2020), 24 items.

The hypothesized structural relationships were tested using *Structural Equation Modeling* (SEM) processed with Lisrel 8.8, which estimated the simultaneous and partial path coefficients of Service Quality and Physical Facilities on Patient Satisfaction. The moderating role of Digital Marketing on the relationship between Patient Satisfaction and Puskesmas Image was tested using *Moderated Regression Analysis* (MRA), comparing the coefficient of determination before and after the interaction term was introduced, and classifying the moderation type following Solimun's (2019) framework based on the significance of the direct (b2) and interaction (b3) coefficients.

RESULT

Descriptively, patients' overall assessment of Service Quality in Puskesmas across Cianjur Regency yielded a mean score of 3.34, placing it in the less-than-favorable category, with two of its five *SERVQUAL* dimensions, *tangibles* and *reliability*, scoring below the variable average. Physical Facilities scored a mean of 3.33 (less than adequate), with the equipment and furniture, lighting and color, and supporting elements dimensions below average, whereas spatial layout and room design were rated comparatively better. Patient Satisfaction obtained an overall mean of 3.33, interpreted as fairly satisfactory, with the *expectation* dimension (3.00) lagging behind the *performance* dimension (3.66), pointing to a persistent gap between what patients hope for and what they experience. Puskesmas Image scored a mean of 3.30 (less than favorable), with the *value* dimension (2.61) markedly weaker than personality, reputation, and corporate identity. Digital Marketing recorded the lowest overall mean at 3.28 (less than effective), with the website, click-based advertising, affiliate marketing and strategic partnership, and social networking dimensions below average, while search engine optimization (3.70) and online public relations (3.74) performed relatively well. A detailed breakdown of the mean scores for each variable and dimension is presented in Table 1.

Table 1. Descriptive Results by Variable and Dimension

Variable	Dimension	Mean	Criteria
Service Quality	Tangibles	3.27	Less favorable
	Reliability	2.92	Less favorable
	Responsiveness	3.46	Favorable
	Assurance	3.65	Favorable
	Empathy	3.47	Favorable
	Overall	**3.34**	**Less favorable**
Physical Facilities	Spatial layout consideration	3.73	Favorable
	Room design	3.52	Favorable
	Equipment & furniture	3.27	Less adequate
	Lighting & color	3.30	Less adequate
	Supporting elements	2.77	Less adequate
	Overall	**3.33**	**Less adequate**
Patient Satisfaction	Performance	3.66	Favorable
	Expectation	3.00	Less favorable
	Overall	**3.33**	**Fairly satisfactory**
Puskesmas Image	Personality	3.48	Favorable
	Reputation	3.45	Favorable
	Value	2.61	Less favorable
	Corporate identity	3.47	Favorable
	Overall	**3.30**	**Less favorable**
Digital Marketing	Website	2.99	Less effective
	Search engine optimization (SEO)	3.70	Effective
	Click-based advertising	2.90	Less effective
	Affiliate marketing & strategic partnership	3.13	Less effective
	Online public relations	3.74	Effective
	Social networking	3.14	Less effective
	Overall	**3.28**	**Less effective**

Source: Data processed by the author (2025), based on questionnaire responses from 400 Puskesmas patients in Cianjur Regency.

Within the Service Quality variable, the *reliability* dimension recorded the lowest mean score of all five SERVQUAL dimensions (2.92), reflecting persistent weaknesses in the accuracy, consistency, and dependability of service delivery, while *responsiveness*, *assurance*, and *empathy* fell into the favorable category, indicating that staff were perceived as reasonably alert, reassuring, and attentive to patients. This pattern suggests that the core weaknesses in Service Quality are concentrated in the technical consistency of care rather than in staff interpersonal conduct. The overall structural model, estimated using SEM in Lisrel 8.8, met the goodness-of-fit criteria (GFI = 0.937, RMSEA = 0.0461, NNFI/TLI = 0.960, NFI = 0.905, AGFI = 0.906, IFI = 0.969, CFI = 0.968), confirming that the proposed model adequately represents the relationships among the variables studied. The results of hypothesis testing for the structural paths under investigation are summarized in Table 2.

Table 2. Summary of Structural Path Testing Results

Structural Path	Path Coefficient	Calculated Value	Critical Value	Conclusion
Service Quality & Physical Facilities → Patient Satisfaction (simultaneous)	$R^2 = 0.712$	F = 90.7361	F(0.05,2,397) = 3.04	Significant (H0 rejected)
Service Quality → Patient Satisfaction (partial)	0.469	t = 7.351	t(0.05,397) = 1.972	Significant
Physical Facilities → Patient Satisfaction (partial)	0.411	t = 6.545	t(0.05,397) = 1.972	Significant
Patient Satisfaction → Puskesmas Image (before moderation)	0.867 (R^2 = 0.752)	t = 3.576	t(0.05,398) = 1.972	Significant
Digital Marketing → Puskesmas Image	0.830 (R^2 = 0.688)	t = 6.893	t(0.05,398) = 1.972	Significant
Patient Satisfaction × Digital Marketing → Puskesmas Image (after moderation)	$R^2 = 0.801$	–	–	Quasi moderator (b2 & b3 significant)

Source: Data processed by the author (2025), based on SEM (Lisrel 8.8) and Moderated Regression Analysis results.

Beyond the path coefficients summarized in Table 2, the decomposition of effects shows that Service Quality contributes a direct effect of 22% and an indirect effect of 16.15% through Physical Facilities on Patient Satisfaction, for a total effect of 38.15%; Physical Facilities contributes a direct effect of 16.90% and an indirect effect of 16.15% through Service Quality, for a total effect of 33.05%. The larger direct effect of Service Quality indicates that patients weigh the quality of care they receive more heavily than the physical environment in forming their satisfaction. Jointly, Service Quality and Physical Facilities explain 71.2% of the variance in Patient Satisfaction, leaving 28.8% attributable to factors outside the model.

With respect to image formation, Patient Satisfaction alone explains 75.2% of the variance in Puskesmas Image, while Digital Marketing alone explains 68.8%. When the interaction between Patient Satisfaction and Digital Marketing was introduced, the explained variance rose to 80.1%, and both the direct effect of Digital Marketing (b2) and the interaction effect (b3) were statistically significant. Following Solimun's (2019) classification, this pattern identifies Digital Marketing as a *quasi moderator*: it simultaneously acts as an independent predictor of Puskesmas Image and strengthens the causal link between Patient Satisfaction and Puskesmas Image. The complete structural model, integrating all path coefficients and coefficients of determination discussed above, is presented in Figure 1.

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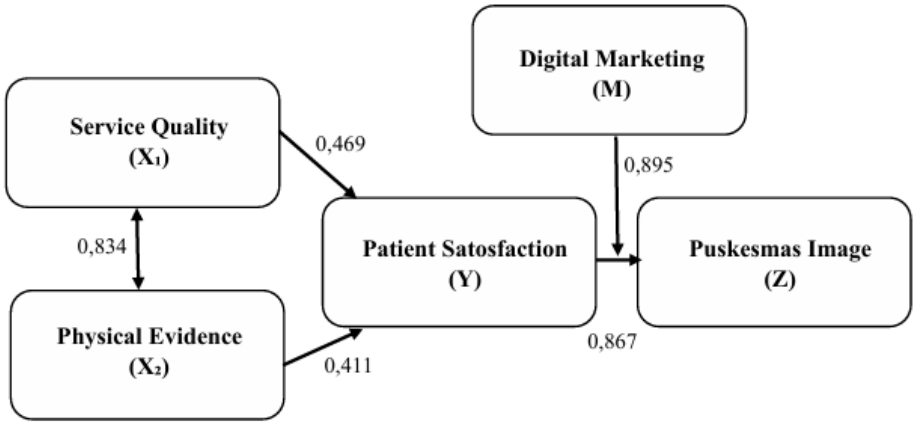
Figure 1. Overall Path Analysis Model



Source: SEM output processed by the author using Lisrel 8.8 (2025)

DISCUSSION

The finding that Service Quality is the dominant determinant of Patient Satisfaction is consistent with *SERVQUAL* theory (Parasuraman et al., 1988), which posits that patients' perception of service interaction quality directly shapes their satisfaction. This result aligns with Rambon et al. (2022), who found a significant effect of service quality on patient satisfaction at a comparable Puskesmas setting, but contrasts with Hasrianty and Sudirman (2022), who reported no significant effect at Puskesmas Dolo. Examining the five SERVQUAL dimensions individually clarifies where this overall effect originates and where the remaining weaknesses lie.

On the *tangibles* dimension (mean = 3.27, less favorable), the weakest indicators concerned the availability of modern equipment and the professional appearance of staff, suggesting that physical evidence of care, an element patients can observe immediately upon arrival, remains a visible shortfall. Because tangibles form patients' first impression of service quality, this finding indicates that even a well-intentioned service encounter can be undermined by an under-equipped or poorly presented environment, echoing Parasuraman et al.'s (1988) original observation that tangible cues shape expectations before any actual interaction occurs.

The *reliability* dimension recorded the lowest mean of all five SERVQUAL dimensions (2.92, less favorable), reflecting inconsistency in the accuracy and dependability of service delivery and a gap between promised and actual service. Since reliability is widely regarded as the core dimension most closely tied to overall service quality perceptions, this result signals that inconsistent execution, rather than staff attitude, is the primary technical weakness limiting Service Quality's contribution to Patient Satisfaction in this setting, a conclusion consistent with the broader SERVQUAL literature emphasizing reliability as the most heavily weighted dimension in most service contexts.

By contrast, *responsiveness* (3.46), *assurance* (3.65), and *empathy* (3.47) were all rated favorable, indicating that patients perceived staff as reasonably alert to requests, capable of instilling confidence and a sense of security, and attentive to individual needs. This pattern suggests that the interpersonal and behavioral aspects of service, how staff treat patients, are comparatively well executed, while the more technical and infrastructural aspects, what patients see and how consistently the process runs, are what most need improvement. For Puskesmas management, this distinction is strategically useful: it points toward targeted investment in equipment, staff presentation standards, and standard operating procedures for service consistency, rather than broad retraining in patient-facing conduct, as the more efficient path to raising overall Service Quality.

Physical Facilities were also found to significantly affect Patient Satisfaction, though with a smaller contribution than Service Quality, a pattern that lends partial support to Molenaar et al. (2023), who identified a meaningful relationship between facilities and satisfaction, while diverging from Ramli et al.

(2024), who found this effect non-significant in a hospital context. Facility-related theory (Tjiptono, in Pitria, 2023) suggests that spatial layout and room design shape patients' comfort and perceived professionalism; in this study, the comparatively low scores on equipment and furniture, lighting and color, and supporting elements indicate specific, addressable weaknesses rather than a uniformly poor physical environment, since spatial layout and room design were in fact rated favorably.

The strong path coefficient from Patient Satisfaction to Puskesmas Image (0.867) confirms that institutional image in this setting is largely built from patients' direct service experience, consistent with Kotler and Keller's (2022) view of image as an enduring perception accumulated through repeated interactions. However, the below-average *expectation* dimension within Patient Satisfaction signals a persistent gap between what patients hope for and what they receive, a gap that, if unaddressed, could erode the positive image currently being built.

The classification of Digital Marketing as a quasi-moderator carries an important managerial implication: digital channels do not merely amplify an already-positive image, they also independently shape public perception of the Puskesmas. This is consistent with Chaffey and Ellis-Chadwick's (2020) view of digital marketing as an integrated set of channels for planning, managing, and executing communication with the public, and with Putri and Handayani's (2024) finding that digital marketing can moderate the relationship between patient satisfaction and healthcare institution image. The relatively strong performance of search engine optimization and online public relations in this study, contrasted with the weaker website, click-based advertising, affiliate marketing, and social networking dimensions, points to specific digital channels that Puskesmas management should prioritize for improvement.

Taken together, these findings imply that Puskesmas management should treat improvements in service quality and physical facilities as prerequisites for patient satisfaction, closing the gap between patient expectations and actual service delivery, while using digital marketing, particularly a more informative and accessible website, active and consistent social media engagement, and stronger affiliate or community partnerships, as a complementary strategy to reinforce the positive image generated by genuine service improvements, rather than as a substitute for them.

CONCLUSION

Based on the results of this study on the effect of Service Quality and Physical Facilities on Patient Satisfaction and its implications for Puskesmas Image, with Digital Marketing as a moderating variable, several conclusions can be drawn. Patients' perceptions of Service Quality at Puskesmas in Cianjur Regency fall into the less-than-favorable category, driven primarily by below-average scores on the tangibles and reliability dimensions. Physical Facilities are perceived as less than adequate, with equipment and furniture, lighting and color, and supporting elements identified as the weakest dimensions.

Patient Satisfaction is rated as fairly satisfactory overall, though the expectation dimension lags behind performance, indicating a gap between anticipated and actual service experience. Puskesmas Image is perceived as less than favorable, with the value dimension scoring notably lower than personality, reputation, and corporate identity. Digital Marketing is assessed as less than effective overall, with website, click-based advertising, affiliate marketing and strategic partnerships, and social networking identified as the weakest channels, while search engine optimization and online public relations perform comparatively well.

Verificatively, Service Quality and Physical Facilities are proven to significantly affect Patient Satisfaction, both simultaneously and partially, confirming that improvements in either dimension translate into higher patient satisfaction. Patient Satisfaction, in turn, significantly affects Puskesmas Image, and Digital Marketing significantly strengthens this effect, functioning as a quasi-moderator that both independently shapes image and amplifies the effect of patient satisfaction upon it.

These findings recommend that Puskesmas management pursue an integrated improvement strategy: strengthening staff professionalism, consistency, and responsiveness in service delivery; upgrading physical facilities, particularly equipment, furniture, lighting, and supporting amenities; actively managing patient expectations through clearer communication of service procedures;

and optimizing digital marketing channels, especially the official website and social media presence, as a strategic complement to reinforce the institutional image built through genuine service quality improvements.

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