

Digital Marketing and Customer Retention in Healthcare: The Mediating Role of Hospital Brand Image at a Private Hospital in Indonesia

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ABSTRACT: This study investigates how digital marketing contributes to customer retention in hospital services and whether hospital brand image functions as a mediating mechanism. The research used a quantitative cross-sectional explanatory design involving 160 adult patients of Permata Bunda Hospital, Purwodadi, Indonesia, selected through purposive sampling. Respondents had previously used hospital services and had experience with the hospital's digital channels. Data were collected using a five-point Likert questionnaire and analyzed with Jamovi/SEMLj through descriptive analysis, confirmatory factor analysis, path analysis, and mediation analysis. All constructs showed high internal consistency and acceptable convergent validity. Digital marketing had a positive and significant effect on hospital brand image (reported coefficient = 0.988, $p < 0.001$) and customer retention (0.474, $p < 0.001$). Hospital brand image also positively affected customer retention (0.478, $p < 0.001$). The indirect effect of digital marketing on customer retention through hospital brand image was significant (0.472, $p < 0.001$), while the direct effect remained significant, indicating partial mediation. The findings suggest that digital marketing contributes to patient retention not only through convenient and responsive digital interaction but also by strengthening perceptions of hospital reputation, professionalism, trust, and service quality. Hospitals should therefore manage digital communication and brand-building as an integrated relationship-marketing strategy.

KEYWORDS - digital marketing, hospital brand image, customer retention, healthcare marketing, patient loyalty, mediation analysis

I. Introduction

Digital transformation has changed how healthcare organizations communicate with patients, distribute service information, and manage relationships beyond face-to-face encounters. Hospital websites, social media, online registration, and digital messaging now function as service touchpoints rather than merely promotional media. Research on healthcare digital marketing emphasizes its role in communication, patient engagement, accessibility, and the management of institutional visibility [1], [2]. More broadly, digital marketing capability has become an organizational resource that shapes how firms create and maintain customer relationships across connected channels [3].

For hospitals, the challenge is not only attracting new patients but retaining existing patients in an environment where service choice increasingly depends on information available before and after care. Customer retention reflects the intention to reuse services, remain with the same provider, and recommend the organization to others. In healthcare, these behaviors are particularly sensitive to perceived risk and trust because patients cannot fully evaluate many aspects of clinical quality before service consumption. Consequently, hospital brand image can operate as a cognitive and affective signal that reduces uncertainty and influences future behavioral intention [4], [5].

The empirical setting of this study illustrates this problem. At Permata Bunda Hospital, Purwodadi, online registration increased from 18.4% in 2023 to 32.6% in 2025, while repeat-visit rate declined from 68.5% to 65.8%. Patient complaints increased and the hospital's Google rating declined over the same period. These indicators suggest that growth in digital activity does not automatically translate into stronger long-term patient relationships. The key question is therefore not simply whether hospitals use digital media, but whether digital interaction is capable of building a favorable institutional image that subsequently encourages patients to stay.

Previous studies have documented positive relationships between healthcare digital marketing and communication outcomes [1], [2], between hospital brand image and loyalty-related outcomes [4]-[6], and between patient experience and loyalty [7], [8]. However, fewer studies integrate digital marketing, hospital brand image, and customer retention within a single mediation model in a regional private-hospital context. This study addresses that gap by examining both direct and indirect effects among the three constructs. The study contributes to relationship-marketing research by positioning hospital brand image as the perceptual mechanism through which digital marketing may be converted into sustained patient retention.

II. Literature Review and Hypothesis Development

2.1 Digital Marketing and Hospital Brand Image

Digital marketing provides repeated exposure to information about services, physicians, facilities, health education, registration procedures, and organizational values. From a relationship-marketing perspective, these touchpoints influence not only awareness but also expectations and trust. Effective digital communication is expected to be accurate, consistent, accessible, interactive, and responsive [9]-[11]. In healthcare, these qualities are especially important because patients frequently use online information to reduce uncertainty before choosing a provider [1].

Brand image represents the set of associations held in memory about an organization [12]. For hospitals, these associations include reputation, perceived service quality, trust and safety, and professionalism. When digital communication consistently communicates competence, transparency, and service accessibility, it can strengthen these associations. Empirical healthcare studies likewise identify brand image as an important competitive resource in shaping subsequent patient behavior [4], [5].

H1. Digital marketing has a positive effect on hospital brand image.

2.2 Digital Marketing and Customer Retention

Digital marketing can support customer retention by reducing search costs, simplifying access to services, and maintaining communication between episodes of care. Online appointment information, reminders, educational content, and responsive messaging extend the service relationship beyond the hospital visit. In services marketing, such continuity strengthens perceived value and lowers the friction associated with repeat use [10], [13].

Healthcare evidence indicates that digital marketing contributes to patient engagement and loyalty when the interaction is useful and consistent rather than purely promotional [1], [2]. Accordingly, patients who evaluate a hospital's digital communication positively should be more willing to return and recommend its services.

H2. Digital marketing has a positive effect on customer retention.

2.3 Hospital Brand Image and Customer Retention

Hospital services contain substantial credence attributes, meaning that patients may find it difficult to evaluate technical quality even after receiving care. Under these conditions, a positive institutional image becomes a risk-

reduction signal. Reputation, perceived quality, professional staff behavior, and a sense of safety can strengthen commitment and resistance to switching [4]-[6].

Prior hospital studies show that favorable brand image is associated with revisit intention, loyalty, and recommendation behavior [4], [5], [8]. These outcomes correspond closely to the behavioral and attitudinal dimensions of customer retention used in this study.

H3. Hospital brand image has a positive effect on customer retention.

2.4 Mediating Role of Hospital Brand Image

Digital marketing may influence retention through two mechanisms. The first is a direct functional mechanism: digital channels make information and access easier. The second is a perceptual mechanism: the same digital experiences shape how patients evaluate the hospital as a brand. When informative and responsive digital interaction is interpreted as evidence of professionalism, transparency, and reliability, hospital brand image is strengthened; that image can then support future choice and advocacy.

This logic is compatible with stimulus-organism-response reasoning, where digital marketing operates as an external stimulus, hospital brand image represents an internal evaluation, and customer retention is the behavioral response. Mediation is present when the indirect path through the mediator is statistically significant [15].

H4. Hospital brand image mediates the effect of digital marketing on customer retention.

III. Methods

3.1 Research Design and Participants

The study employed a quantitative, explanatory, cross-sectional design. The population comprised patients who had used services at Permata Bunda Hospital, Purwodadi, Central Java, Indonesia. The final analyzed sample consisted of 160 respondents selected through purposive sampling. Eligible participants had previously used hospital services, were at least 18 years old, were able to complete the questionnaire independently, and had sufficient experience with the hospital and its digital channels to evaluate the study constructs. The use of purposive sampling was consistent with the study's requirement that respondents be familiar with both the hospital service and its digital communication.

Among the 160 respondents, 59.38% were women and 40.62% were men. The largest age group was 31-40 years (46.25%), followed by 41-50 years (34.38%). Respondents had experience with outpatient services (36.25%), inpatient services (32.50%), or both (31.25%), providing a broadly distributed service-use profile.

3.2 Measurement

All constructs were measured using five-point Likert scales. Digital marketing covered digital presence, content quality, interactivity and responsiveness, and ease of digital service access. Hospital brand image covered reputation, perceived service quality, trust and safety, and staff professionalism. Customer retention represented repeat-use intention, attitudinal commitment, resistance to switching, and positive word of mouth. These operational dimensions were derived from the theoretical framework and prior service-marketing literature [10]-[13].

3.3 Data Analysis

Data analysis was performed in Jamovi with the SEMLj module. Reliability was assessed using Cronbach's alpha. Confirmatory factor analysis (CFA) was estimated using Diagonally Weighted Least Squares (DWLS) because the indicators were measured on ordinal Likert scales. Convergent validity was evaluated using standardized factor loadings, and model fit was examined using CFI, TLI, SRMR, and RMSEA. Structural relationships were then tested using path analysis, followed by mediation analysis to estimate direct, indirect, and total effects. A 5% significance level was used for hypothesis testing [14], [15].

Participants were informed in writing that questionnaire responses would be used solely for academic purposes and that the confidentiality of their responses would be maintained.

IV. Results

4.1 Descriptive and Measurement Results

Table 1. Descriptive evaluation of study constructs

Construct	Score (%)	Category
Digital marketing	81.94	Good
Hospital brand image	81.93	Good
Customer retention	82.47	Good

All three constructs were evaluated positively by respondents. Customer retention recorded the highest descriptive score (82.47%), followed closely by digital marketing (81.94%) and hospital brand image (81.93%). The results suggest that the hospital had established a generally positive digital and relational experience, although the operational indicators reported in the thesis show room for improvement in response speed, repeat visits, and public ratings.

Table 2. Reliability and measurement-model summary

Construct	Cronbach's alpha	Loading range	CFI	TLI	SRMR	RMSEA
Digital marketing	0.942	0.610-0.764	0.984	0.981	0.080	0.080
Hospital brand image	0.921	0.619-0.700	0.984	0.980	0.075	0.078
Customer retention	0.941	0.580-0.736	0.976	0.973	0.071	0.093

Internal consistency was high for all constructs. Standardized factor loadings were above 0.50, supporting convergent validity. CFI and TLI exceeded 0.90 for all measurement models, and SRMR values were at or below 0.08. RMSEA was acceptable for digital marketing and hospital brand image, while the customer-retention model showed marginal RMSEA fit (0.093). Taken together, the measurement results supported proceeding to the structural analysis, while the marginal RMSEA for customer retention warrants cautious interpretation.

4.2 Direct Structural Effects

Table 3. Direct path estimates

Hypothesis	Relationship	Estimate	t	p	Decision
H1	Digital marketing -> Hospital brand image	0.988	53.408	<0.001	Supported
H2	Digital marketing -> Customer retention	0.474	7.010	<0.001	Supported
H3	Hospital brand image -> Customer retention	0.478	7.170	<0.001	Supported

Digital marketing had a strong positive association with hospital brand image (estimate = 0.988, $p < 0.001$), and the first structural equation explained 94.8% of the variance in hospital brand image ($R^2 = 0.948$). In the customer-retention equation, digital marketing (0.474, $p < 0.001$) and hospital brand image (0.478, $p < 0.001$) were both significant positive predictors. Together they explained 96.0% of the variance in customer retention ($R^2 = 0.960$). Hospital brand image had a slightly larger coefficient than the direct digital-marketing path, although the difference was small.

4.3 Mediation Analysis

Table 4. Mediation of digital marketing and customer retention by hospital brand image

Effect	Estimate	SE	Z	p	Interpretation
Indirect effect	0.472	0.0915	5.16	<0.001	Significant
Direct effect	0.474	0.0920	5.15	<0.001	Significant
Total effect	0.946	0.0261	36.19	<0.001	Significant

The indirect effect through hospital brand image was positive and significant (0.472, $p < 0.001$). Because the direct effect remained significant after the mediator was included (0.474, $p < 0.001$), the mediation pattern was partial rather than full. Thus, digital marketing was associated with customer retention through both a direct service-relationship pathway and an indirect brand-image pathway.

V. Discussion

5.1 Digital Marketing as a Driver of Hospital Brand Image

The strongest path in the model was the association between digital marketing and hospital brand image. This finding supports the argument that digital touchpoints are part of the hospital experience rather than separate promotional activities. When patients encounter accurate information, professional presentation, easy access, and responsive communication, these features become signals of organizational competence and reliability. Healthcare digital-marketing research has similarly emphasized communication, engagement, and accessibility as important consequences of digitalization [1], [2].

The very high coefficient and R^2 should nevertheless be interpreted carefully. Both constructs were measured from the same respondents at the same time, and the conceptual domains are closely connected. The result therefore demonstrates a strong perceptual association within this sample, but the cross-sectional design does not establish that changes in digital marketing will automatically cause equivalent changes in brand image over time.

5.2 Direct Effects on Customer Retention

Digital marketing remained a significant predictor of customer retention after hospital brand image was included. This indicates that digital channels can support retention through functional value as well as symbolic value. Patients may return because online access, information, and communication reduce effort and make the relationship with the hospital easier to maintain. This interpretation is consistent with services-marketing literature that treats convenience, communication, and continuity as important components of long-term customer relationships [10], [13].

Hospital brand image also had a significant positive relationship with retention. In healthcare, this pathway is theoretically plausible because institutional reputation and trust help patients manage uncertainty. Prior studies report links between hospital image and behavioral intention, revisit intention, and loyalty [4]-[6], [8]. In the present study, the brand-image coefficient was marginally larger than the direct digital-marketing coefficient, suggesting that what digital activity communicates about the hospital may be as important as the functionality of the digital channel itself.

5.3 Hospital Brand Image as a Partial Mediator

The mediation results provide the main theoretical contribution. The indirect effect of 0.472 was almost the same magnitude as the remaining direct effect of 0.474. This pattern indicates two parallel mechanisms. First, digital marketing can directly facilitate continued use through convenience, access, and ongoing communication. Second, it can shape perceptions of reputation, quality, trust, safety, and professionalism; these perceptions then strengthen the patient's willingness to remain with the hospital.

The partial mediation is important because it cautions against treating digital marketing as a stand-alone promotional tool. A hospital may invest in content and digital channels, but those investments are more likely to support long-term retention when the digital experience reinforces a credible institutional image. The finding is consistent with the broader evidence that brand image and patient experience contribute to loyalty-related outcomes [4], [7], [8].

VI. Theoretical Implications

This study extends relationship-marketing reasoning in a healthcare setting by connecting a controllable organizational activity (digital marketing), a patient-level perceptual mechanism (hospital brand image), and a relationship outcome (customer retention). The findings show that the digital-retention relationship is not exclusively direct; a substantial portion operates through the way patients interpret the hospital as a brand.

The results also distinguish functional digital value from symbolic brand value. Digital touchpoints can reduce effort and maintain contact, while hospital brand image organizes broader judgments of reputation, quality, trust, and professionalism. Modeling both mechanisms simultaneously provides a more complete explanation of patient retention than examining digital activity or brand image in isolation.

VII. Practical Implications

For hospital management, the findings imply that digital marketing and brand management should be coordinated rather than managed as separate programs. Digital content should be accurate, current, educational, and consistent with the service experience delivered offline. The hospital should prioritize response speed across social media and messaging channels, maintain up-to-date physician schedules and service information, and simplify online registration and reservation processes.

Brand-building should focus on the same attributes that patients evaluate through digital channels: transparency, professional conduct, service quality, safety, and credibility. Management should therefore monitor digital engagement metrics together with retention indicators such as repeat visits, complaints, patient recommendations, and online reviews. This integrated dashboard would help determine whether digital reach is actually being converted into stronger patient relationships.

VIII. Limitations and Future Research

The study has several limitations. First, it used a cross-sectional design, so the significant paths should be interpreted as statistical associations rather than definitive longitudinal causal effects. Second, all principal constructs were measured using self-reported questionnaire data from the same respondents, creating potential common-method bias and possibly contributing to the very high explained variance in the structural models. Third, the research was conducted at one private hospital in Purwodadi using purposive sampling, which limits population-level generalization.

Future studies should use multi-hospital samples, probability-based sampling where feasible, and longitudinal designs that connect digital exposure with actual revisit behavior. Additional mediators such as patient trust, patient satisfaction, patient experience, e-WOM, digital service quality, customer engagement, or e-CRM may help explain why some digital strategies generate retention more effectively than others. The customer-retention measurement model should also be refined because its RMSEA indicated marginal fit.

IX. Conclusion

Digital marketing was positively associated with both hospital brand image and customer retention among patients of Permata Bunda Hospital, Purwodadi. Hospital brand image also had a positive relationship with customer retention and partially mediated the digital marketing-retention relationship. These results indicate that digital marketing contributes to retention through a combination of functional interaction and perceptual brand-building. For hospital managers, the implication is to align digital communication, online service access, responsiveness, and institutional reputation within one relationship-marketing strategy. Because the design was cross-sectional and based on self-reported data from a single hospital, the findings should be generalized cautiously and validated in broader and longitudinal samples.

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