Patient Satisfaction and Loyalty in Public Healthcare: The Role of Digital Marketing and Service Quality

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A B S T R A C T

This study examines the influence of digital marketing and health service quality on patient satisfaction and loyalty at the Rangkah Health Center in Surabaya. The research is grounded in the growing demand for responsive, technology-driven healthcare services in an increasingly competitive environment, particularly against private healthcare providers. A quantitative research approach was employed, utilizing questionnaires administered to 179 respondents who received medical services at the health center. Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The findings indicate that both digital marketing and health service quality significantly affect patient satisfaction and loyalty. Furthermore, patient satisfaction was found to mediate the relationship between digital marketing, health service quality, and patient loyalty. These results underscore the importance of integrating effective digital marketing strategies with enhanced service quality to establish and sustain patient loyalty. The study offers strategic insights for public healthcare administrators in navigating the ongoing digital transformation of the healthcare sector.

A B S T R A K

Penelitian ini bertujuan untuk menganalisis pengaruh pemasaran digital dan kualitas layanan kesehatan terhadap kepuasan dan loyalitas pasien di Puskesmas Rangkah, Surabaya. Latar belakang studi ini dilandasi oleh meningkatnya kebutuhan akan pelayanan kesehatan yang responsif, modern, dan berbasis teknologi digital, terutama dalam konteks persaingan dengan fasilitas kesehatan swasta. Penelitian ini menggunakan pendekatan kuantitatif dengan teknik pengumpulan data melalui kuesioner yang disebarkan kepada 179 responden yang pernah berobat di Puskesmas Rangkah. Metode analisis yang digunakan adalah Structural Equation Modeling-Partial Least Square (SEM-PLS). Hasil penelitian menunjukkan bahwa baik pemasaran digital maupun kualitas layanan kesehatan berpengaruh signifikan terhadap kepuasan dan loyalitas pasien. Selain itu, kepuasan pasien terbukti berperan sebagai variabel mediasi antara pemasaran digital dan kualitas layanan dengan loyalitas pasien. Temuan ini menegaskan pentingnya integrasi antara strategi pemasaran digital yang efektif dan peningkatan kualitas layanan dalam membangun loyalitas pasien secara berkelanjutan. Penelitian ini memberikan implikasi strategis bagi pengelola layanan kesehatan publik dalam menghadapi transformasi digital di sektor kesehatan.

Keywords:
Digital marketing, quality of health service, patient satisfaction, patient loyalty, public health center.

1. INTRODUCTION

Health services are a fundamental right of every citizen and a critical component of national development, as mandated by Law No. 36 of 2009. Public health centers, as primary healthcare providers, play a strategic role in ensuring equitable access to high-quality services. In response to increasing demands for efficiency and responsiveness, the integration of digital technologies—particularly digital marketing—has emerged as a key innovation for expanding service outreach and enhancing community engagement (Chaffey & Chadwick, 2019).

Contemporary healthcare consumers are becoming more discerning, evaluating services not only based on affordability and geographic location but also on service quality and accessibility of information (Kotler & Keller, 2017). This evolving consumer behavior poses challenges for public health centers, which must compete with private clinics and independent medical practices (Fatima et al., 2018). Digital transformation enables healthcare institutions to engage more effectively with patients through digital marketing strategies that foster positive perceptions, enhance trust, and increase public interest (Chaffey & Chadwick, 2019).

Moreover, patient satisfaction serves as a crucial indicator of service performance. Patients who are satisfied are more likely to exhibit loyalty and recommend the healthcare facility to others (Griffin, 2015). The Rangkah Health Center, located in a densely populated area of Surabaya, faces significant competition from private healthcare providers. This necessitates the adoption of adaptive, technology-driven communication strategies to strengthen patient relationships and maintain competitive advantage (Weshah et al., 2021).

Service quality remains a key success factor, with patient perceptions influenced by the match between expectations and services received. Previous studies have shown inconsistent results regarding the factors that influence patient satisfaction and loyalty. For example, Hanif and Suyanto (2023) found that service quality has a direct effect on patient satisfaction, while Fatima, et al. (2018) confirmed that patient satisfaction is an important mediator linking service quality and patient loyalty. Meanwhile, research by Liu, et al. (2021) shows that patient satisfaction is not directly related to patient loyalty, in contrast to the findings of other studies which state that loyalty is more influenced by satisfaction as an intermediary variable.

In addition, research on digital marketing in the context of health services is still limited, especially in primary health care facilities such as public healthcare. Most previous studies have focused more on the hospital sector or private health services, so they do not fully describe the dynamics of digital media use in community health centers that serve communities with diverse socioeconomic characteristics.

This study aims to analyze the effect of digital marketing and quality of health service on patient satisfaction and loyalty at Rangkah Health Center. The results are expected to provide an empirical basis for formulating technology-based healthcare strategies that are oriented towards patient satisfaction and long-term engagement.

2. RESEARCH FRAMEWORK AND HYPOTESIS

Digital marketing provides extensive opportunities for organizations to engage with target audiences more efficiently and strategically. It enables communication with potential consumers without the need for face-to-face interaction, thereby facilitating continuous and scalable engagement (Tarigan et al., 2023). One prominent form of digital marketing involves the use of social media platforms such as Instagram, YouTube, Twitter, and Facebook, as exemplified by the marketing strategies employed by Samsung Galaxy (Masruroh et al., 2023). The advantages of digital marketing include broader market penetration, as the internet enables companies to reach a global audience without geographical limitations.

The quality of health services is a strategic issue in increasing patient satisfaction and trust. Kotler and Keller (2017) explain that service quality is a work process in improving and maintaining continuous quality improvement from the production process, to the services produced by the company. Service quality can be measured through five main dimensions, namely tangibles (physical evidence), reliability (reliability), responsiveness (responsiveness), assurance (assurance), and empathy (empathy). In the context of health services, these dimensions include aspects such as the physical facilities of the hospital, the accuracy of diagnosis and treatment, the speed of response of medical staff, and the ability to provide a sense of security and care to patients.

In an increasingly competitive healthcare era, one of the main challenges is to ensure that patients not only recover, but also feel satisfied with the services received. Patient satisfaction is defined as a feeling of pleasure or disappointment that arises from the comparison between the patient's expectations and his or her perception of the service received (Kotler & Keller, 2017). A number of previous studies have revealed that patient satisfaction is influenced by various factors, such as service quality, staff communication, and supporting facilities (Fatima et al., 2018; Meesala & Paul, 2016). Evaluating and improving patient satisfaction is an important strategy in health facility management.
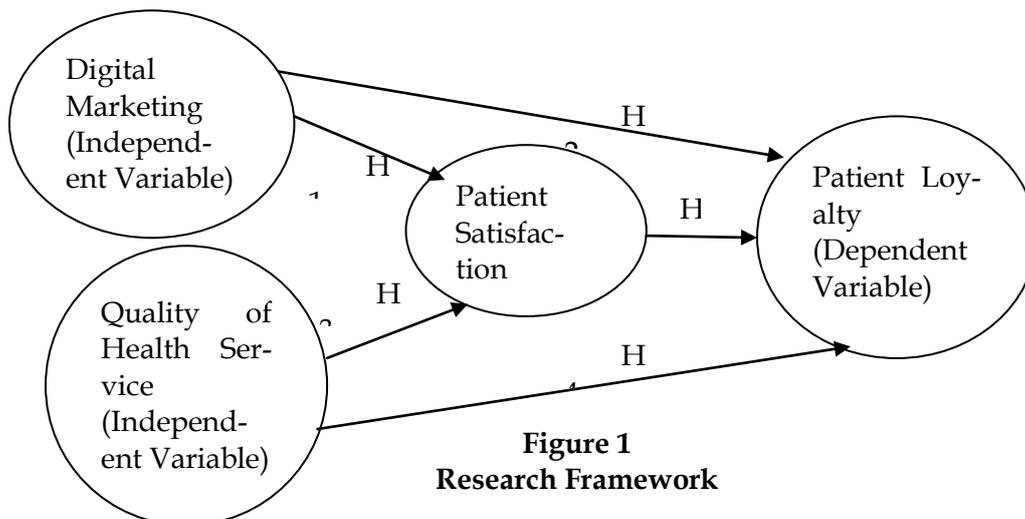

Figure 1
Research Framework

Source: Data Processed

Retaining patients presents a challenge that is equally critical as attracting new ones. Patient loyalty is defined as an individual's commitment to consistently utilize a particular healthcare service in the future, despite the availability of alternative options (Griffin, 2015). This loyalty is shaped by several factors, including patient satisfaction with services received, trust in healthcare providers, and perceptions of the overall quality of healthcare facilities. Previous studies have identified various determinants of patient loyalty, such as service quality (Addo et al., 2020), patient trust (Liu et al., 2021), and patient satisfaction (Qashmal et al., 2024). The findings of these studies generally indicate a positive correlation between patient satisfaction and loyalty. However, most existing research has concentrated on large hospitals or general healthcare settings, whereas studies focusing on specific service contexts such as public health centers remai.

The Influence of Digital Marketing on Patient Satisfaction

Digital marketing has a positive and significant effect on customer satisfaction (Masruroh, 2023). This explains that if the digital marketing strategy implemented by company management can be carried out effectively, this will facilitate interaction between the company and customers which becomes faster and can increase product value to customers (Apriliani, 2023). The same results can also be seen from research conducted by Hanif and Suyanto (2023) which suggests that the more effective digital marketing is, the higher customer satisfaction. Research conducted by Weshah et al. (2021) shows that digital marketing strategies in the form of SEO have a significant effect on patient satisfaction, but digital marketing strategies in the form of social media networks and email marketing do not have a significant effect on patient satisfaction.

H1: There is a significant influence between digital marketing on patient satisfaction at Rangkah Health Center

The Influence of Digital Marketing on Patient Loyalty

Research conducted by Hanif and Suyanto (2023) indicates that increased effectiveness in digital marketing strategies is positively associated with higher levels of customer loyalty. Similarly, a study by Mesquita and Jaya (2024) found that digital marketing has a significant impact on consumer loyalty. This influence is attributed to the ability of digital marketing to stimulate consumer curiosity, enabling potential customers to easily access information about products and complete transactions online (Qashmal et al., 2024).

H2: There is a significant influence between digital marketing on patient loyalty at Rangkah Health Center

The Influence of Quality of Health Service on Patient Satisfaction

Research conducted by Addo et al. (2020) suggests that the quality of doctor, pharmacy, and laboratory services has a strong effect on patient satisfaction. The results of this study are in line with research conducted by Hanif and Suyanto (2023) which suggests that the more effective the quality of service, the higher customer satisfaction. Zulhijjah

and Muhammad (2022) also suggest that service quality has a significant effect on customer satisfaction. Consumers who get good service tend to feel satisfied with the experience of buying products / services. Research by Fatima et al. (2018) also said that there is a positive correlation between the quality of health services and patient satisfaction.

H3: There is a significant influence between the quality of health services on patient satisfaction at Rangkah Health Center

The Influence of Quality of Health Service on Patient Loyalty

Research conducted by Hanif and Suyanto (2023) suggests that the more effective the service quality, the higher the customer loyalty. This is in line with research conducted by Addo et al. (2020) that the quality of doctor, pharmacy, and laboratory services has a strong effect on patient loyalty. Research by Fatima et al. (2018) also said that there is a positive correlation between the quality of health services and patient loyalty. Meanwhile, in Meesala and Paul's research (2016) the dimensions of service quality that affect patient satisfaction are reliability and responsiveness. Service quality is considered a key element that influences the way consumers interact and relate to a company. High service quality is identified as a factor that contributes positively to the formation of consumer loyalty.

H4: There is a significant influence between the quality of health services on patient loyalty at Rangkah Health Center

The Influence of Patient Satisfaction on Patient Loyalty

Previous studies have demonstrated that higher levels of customer satisfaction are associated with increased customer loyalty (Hanif & Suyanto, 2023). This finding is consistent with research conducted by Mesquita and Jaya (2024), which confirms that customer satisfaction has a significant impact on customer loyalty. Similarly, Fatima et al. (2018) and Meesala and Paul (2016) reported a positive correlation between patient satisfaction and patient loyalty, suggesting that positive service experiences foster satisfaction, which subsequently enhances loyalty. However, contrasting evidence from Liu et al. (2021) indicates that patient satisfaction does not have a direct effect on patient loyalty, implying the presence of mediating variables or contextual factors that influence this relationship.

H5: There is a significant influence between patient satisfaction and patient loyalty at Rangkah Health Center

3. RESEARCH METHOD
Population and Sample Technique

The population of this study consisted of all patients who had received services at the Rangkah Health Center. The sample comprised 250 respondents selected using a purposive sampling technique based on the following criteria: patients aged 18–55 years who had visited the Rangkah Health Center at least twice within the past six months and had accessed health-related information through digital media. A total of 250 questionnaires were distributed; however, only 179 were deemed suitable for further analysis. Seventy-one questionnaires were

excluded due to failure to meet data eligibility criteria. Therefore, the final valid sample consisted of 179 respondents. This sample size is considered adequate for analysis using the Partial Least Squares (PLS) method, as it meets the minimum sample requirement based on the rule of thumb established by Hair et al. (2014), which states that the sample size should be five to ten times the number of indicators.

Operational Definition and Variable Measurement
Digital Marketing

Digital marketing is a form of marketing activity and promoting the health services of Rangkah Health Center via the internet, in this case through the website, Instagram social media, and WhatsApp. To measure the digital marketing variable, 6 statement items were used which were adopted from Dastane (2020).

Quality of Health Service

Quality of health services is the response of patients after experiencing health services at Rangkah Health Center. To measure the quality of health service variable, 13 statement items were used which were adopted from Maqsood (2017).

Patient Satisfaction

Patient satisfaction is the response of Rangkah Health Center's patients to feelings of pleasure or disappointment that arise from comparing the health services received with patient expectations. To measure the patient satisfaction variable, 6 statement items were used which were adopted from Maqsood (2017).

Patient Loyalty

Patient loyalty is a response regarding the commitment of patients to faithfully seek treatment at Rangkah Health Center if needed. To measure the patient loyalty variable, 5 statement items were used which were adopted from Leninkumar (2017).

Table 1
Variable and Questionnaire Items

Variable	Items
Digital Marketing	The internet helps me look for types of services at Rangkah Health Center
	The WhatsApp application provides quality information
	Rangkah Health Center information is available on social media
	It's easy to compare other healthcare products on the internet
	Opinion exchange with others is possible through Rangkah Health Center's social media
	The internet facilitated the search for information on Rangkah Health Center

Quality of Health Service	Rangkah Health Center's handling admission should be polite
	Rangkah Health Center has knowledgeable and experienced staff
	Rangkah Health Center take precauitons to prevent their acquired infection to the patients
	Materials associated with services will be visually appealed
	When patients have problems, Rangkah Health Center will show a sincere interest in solving it
	Rangkah Health Center has clean washroom, clean room/wards without foul smell
	Rangkah Health Center give prompt service to customers
	Rangkah Health Center is will always willing to help patients
	Rangkah Health Center will never to be busy to respond to patient's request
	Rangkah Health Center has the best interest in heart
	Rangkah Health Center staff will explain precaution to be taken by patient after discharge
	Rangkah Health Center should provide good services, reasonable prices but not at the expanse of quality
	Rangkah Health Center staff should have a sense of responsibility
Patient Satisfaction	Indoor service is satisfactory
	Rangkah Health Center understands my problem
	Rangkah Health Center accepts my suggestions
	Doctors are available throughout their duty
	Overall supportive facilities are excellent
	My expectations are fully meet with regard to staff
Patient Loyalty	I say positive things about Rangkah Health Center to others
	I recommend Rangkah Health Center
	I encourage friends and relatives to get treatment at Rangkah Health Center
	I consider Rangkah Health Center as first choice to get health services
	I am willing to visit Rangkah Health Center again

Source: Dastane (2020), Maqsood et al., (2017), Leninkumar (2017)

All variables in this study were measured using a Likert Scale, which ranges from a score of 1 to 5, namely: (1) strongly disagree (2) disagree (3) undecided (4) agree (5) strongly agree.

Validity and Reliability Testing of the Research

The validity test used includes convergent validity test and discriminant validity test. Convergent validity test can be seen from the loading factor and Average Variance Extracted (AVE) (Mesquita and Jaya, 2024). The loading factor value must be more than 0.6 and the AVE value must be more than 0.5. The discriminant validity test used is the Fornell-Larcker Criterion (AVE square root value). The AVE square root value for a construct must be greater than its correlation with other constructs. This indicates that the variance explained by the indicators in a construct is greater than the variance explained by other constructs. In other words, the construct explains more of the variance of its own items than the items of other constructs.

Data Analysis Techniques

Data analysis used in this study is Structural Equation Modelling-Partial Least Square (SEM-PLS) using Smart PLS software.

Evaluation of the Outer Model

The evaluation of the outer model is measured using convergent validity, discriminant validity, and composite reliability. If loading factor value falls between 0.40 and 0.70, it may still be considered for removal only if deleting the indicator leads to an increase in composite reliability (or AVE) above the recommended threshold value (Hair et al., 2017).

Evaluation of the Inner Model

The inner model aims to determine the relationships between independent variables and the dependent variable. Evaluation of the inner model can begin by examining the R^2 value for each endogenous laten variable as an indicator of the structural model's predictive strength.

Hypotesis Testing

Hypothesis testing is carried out by comparing the p-value with alpha (5%). Acceptance and rejection criteria are as follows:

H0 is accepted: P-Value ≥ 0.05; H0 is rejected: P-Value ≤ 0.05

4. Data Analysis and Discussion

Table 2
Respondent's Description

No	characteristic	description	Number of respondents	presentage
1	Gender	Male	24	13%
		Female	155	87%
2	Age	18-25 years old	21	12%
		26-35 years old	38	21%
		36-45 years old	49	27%
		46-55 years old	71	40%

3	Education	Elementary school	18	10%
		Junior high school	36	20%
		Senior high school	82	46%
		Diploma	14	8%
		Bachelor	27	15%
		Master / Doctor	2	1%
4	Frequency of visit	1 time	25	14%
		2 times	56	31%
		3-5 times	57	32%
		More than 5 times	41	23%
5	Frequency of digital media access	1 time	65	36%
		2 times	25	14%
		3-5 times	46	26%
		More than 5 times	43	24%
6	Jobs	Civil Servants / Military / Police	14	8%
		Housewife / Not working	39	22%
		Private employee	44	24%
		Student	10	6%
		Entrepreneurship	20	11%
		Others	52	29%
7	Income	<3 million	114	64%
		3-5 million	59	33%
		5-7 million	4	2%
		>7 million	2	1%

Source: Data Processed

Based on Table 2, of the 179 valid questionnaires, the majority of respondents were female, accounting for 87% of the sample. In terms of age distribution, the largest proportion of respondents fell within the 46–55 year age group, representing 40%. With regard to educational attainment, respondents with a senior high school or vocational high school (SMA/SMK) background constituted the largest group at 46%. Furthermore, 32% of respondents reported visiting the Rangkah Health Center 3–5 times in the past six months, while the most common frequency of accessing digital media was once, reported by 36% of respondents.

Descriptive Analysis

The score shows the level of respondents' responses to each statement in the questionnaire.

Table 3
Descriptive Analysis of Each Variable

No	Variable	Mean
1	Digital marketing	4.16
2	Quality of health service	4.30
3	Patient satisfaction	4.33
4	Patient loyalty	4.15

Source: Data Processed

Based on the tabulated average scores for each construct, respondents' perceptions of digital marketing were generally positive, with an overall mean score of 4.16 on a 5-point scale. The highest-scoring dimensions were informativeness and accessibility, indicating that respondents perceived the digital media platforms of the Puskesmas to be both informative and easily accessible.

Perceptions of health service quality were also favorable, reflected by an average score of 4.30. The responsiveness and empathy dimensions received the highest evaluations, suggesting that the promptness and attentiveness of healthcare staff were the most valued aspects of service delivery.

Patient satisfaction achieved an average score of 4.33, demonstrating that the majority of respondents were satisfied with their service experience, particularly in relation to service procedures and staff conduct. Meanwhile, patient loyalty recorded an average score of 4.15, with the strongest indicator being respondents' willingness to recommend the Rangkah Health Center to others.

Overall, the descriptive analysis indicates that all variables fall within the "good" to "very good" categories, reflecting the community's positive perception of the services provided by the Rangkah Health Center. Nonetheless, there remains potential for enhancement, particularly in terms of improving facility comfort and offering more engaging and diverse digital promotional content.

Results

In this study, SmartPls Software version 3.0 was used to conduct partial least square analysis. First, the evaluation of the measurement model (outer model) is measured by four metrics which include convergent validity, discriminant validity, Cronbach's alpha and composite reliability.

Based on Table 4, it can be seen that the measurement results show that all statement items in each construct have a significant loading factor, with a value that clearly exceeds the threshold value of 0.6. This indicates that each statement item effectively reflects the construct being measured, so all statement items have good convergent validity

Table 4
AVE Value, Composite Reliability and Cronbach's Alpha

No	Variable	Item	Validity Test		Reliability Test	
			Loading Factor	AVE	Composite Reliability	Cronbach's Alpha
1	Digital	DM1	0.784	0.585	0.894	0.858

No	Variable	Indicator	Loading	AVE	CR	Cronbach's alpha
	marketing	DM2	0.800			
		DM3	0.787			
		DM4	0.697			
		DM5	0.725			
		DM6	0.789			
2	Quality of health services	SQ1	0.753	0.648	0.901	0.863
		SQ2	0.749			
		SQ3	0.726			
		SQ4	0.700			
		SQ5	0.766			
		SQ6	0.638			
		SQ7	0.791			
		SQ8	0.644			
		SQ9	0.791			
		SQ10	0.795			
		SQ11	0.674			
		SQ12	0.670			
		SQ13	0.688			
3	Patient satisfaction	PS1	0.786	0.551	0.880	0.837
		PS2	0.789			
		PS3	0.736			
		PS4	0.717			
		PS5	0.716			
		PS6	0.705			
4	Patient loyalty	PL1	0.768	0.524	0.934	0.924
		PL2	0.847			
		PL3	0.883			
		PL4	0.703			
		PL5	0.812			

Source: Data Processed

Based on the Average Variance Extracted (AVE) results presented in Table 4, it can be concluded that all variables—digital marketing, quality of health services, patient satisfaction, and patient loyalty—demonstrate acceptable AVE values. The AVE indicates the extent to which the observed indicators explain the latent construct being measured. Generally, an AVE value greater than 0.50 is considered satisfactory. Therefore, the AVE values obtained in this study confirm that all constructs exhibit good convergent validity.

Furthermore, Table 4 also presents the results of reliability testing, which indicate that all variables in the large sample demonstrate high reliability. The constructs of digital marketing, quality of health services, patient satisfaction, and patient loyalty each have Cronbach's alpha values exceeding the minimum threshold of 0.60, signifying that the indicators within each construct are internally consistent and reliable. Additionally, the composite reliability values are high, further reinforcing the robustness and reliability of the measurement model.
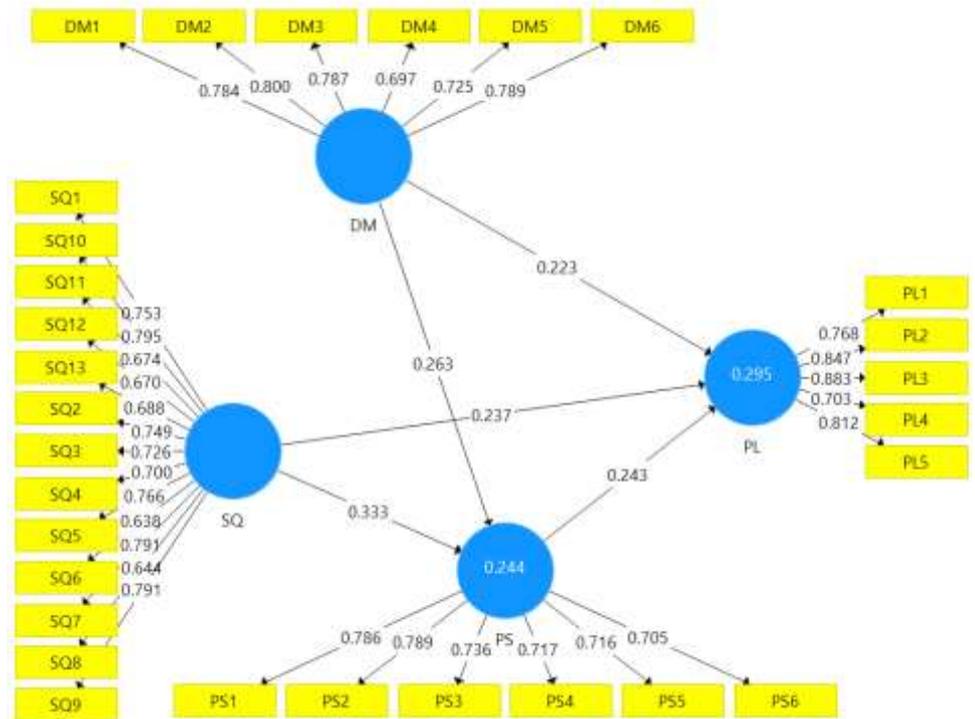
Figure 2
Inner Model

Source: Data Processed

Based on the inner model scheme that has been displayed in Figure 2 above, it can be explained that the path coefficient value is positive. This shows that if the higher the path coefficient value on the independent variable on the dependent variable, the higher the effect produced between the independent variable and the dependent variable.

Table 5
R-Square Value

	R square	Q square
Patient loyalty (PL)	0.295	0.181
Patient satisfaction (PS)	0.244	0.126

Source: Data Processed

Table 5 shows that the resulting R-Square value is 0.296, which means that the magnitude of the influence of digital marketing (DM), quality of health service (SQ) and patient satisfaction (PS) on the influence of patient loyalty (PL) is 29.5% while the remaining 70.5% is influenced by other variables outside this research model. While the resulting R-Square value is 0.244, which means that the magnitude of the influence of digital marketing (DM) and quality of health service (SQ) on the influence of patient satisfaction (PS) is 24.4% while the remaining 75.6% is influenced by other variables outside this research model.

Based on Table 5, the resulting Q-Square value is above zero, namely 0.181 and 0.126, which means that the resulting model has a good observation value (predictive relevance). While the resulting F-

Square value is:

Table 6
F-Square Value

	PS	PL	Description
Digital marketing (DM)	0.080	0.057	Low
Quality of health services (SQ)	0.127	0.064	Moderate (PS), Low (PL)
Patient satisfaction (PS)	-	0.061	Low

Source: Data Processed

Table 6 shows that the F-Square value of the digital marketing variable (DM) has little effect on patient satisfaction (PS), and quality of health service (SQ) has a moderate effect on patient satisfaction (PS). The table 6 also shows that the F-Square value on the variables of digital marketing (DM), patient satisfaction (PS) and quality of health service (SQ) has little effect on patient loyalty (PL).

Table 7
VIF Value

	PL	PS
Digital marketing (DM)	1.246	1.155
Patient satisfaction (PS)	1.323	
Quality of health services (SQ)	1.301	1.155

Source: Data Processed

Table 7 shows that the VIF value is <5, which means that there is no strong correlation between the research variables or it is said that there is no multicollinearity. This fact is supported by the absence of a strong correlation between independent variables as in the Table 8.

Table 8
Correlation Value between Variables

	DM	PL	PS	SQ
Digital marketing (DM)	1.000	0.404	0.385	0.366
Patient loyalty (PL)	0.404	1.000	0.431	0.423
Patient satisfaction (PS)	0.385	0.431	1.000	0.429
Quality of health services (SQ)	0.366	0.423	0.429	1.000

Source: Data Processed

The absence of multicollinearity is also supported by the correlation value between the research variables above, it appears that the correlation value between variables is almost nothing strong or almost all the correlation values are below 0.80.

The results of hypothesis testing in Table 9, reveal important findings in this study, where all hypotheses in this study are confirmed or accepted with criteria of a p-value <0.05 and a T-statistic >1.96. Hypothesis 1, namely the effect of digital marketing on patient satisfac-

tion, was confirmed with a p-value of 0.001 and a T-statistic of 3.363. Therefore, it can be concluded that hypothesis 1, namely that digital marketing has a positive and significant effect on patient satisfaction in this study, is accepted. Digital marketing on patient loyalty was confirmed with a p-value of 0.001 and a T-statistic of 3.391. Therefore, it can be concluded that hypothesis 1, that digital marketing has a positive and significant effect on patient loyalty, is accepted.

Table 9
Direct Effect Test

Hip	Influence	Coefficient value	T *Statistics* (|O/STDEV|)	p-values	Description
H1	Digital marketing → Patient satisfaction	0.263	3.363	0.001	Significant
H2	Digital marketing → Patient loyalty	0.223	3.391	0.001	Significant
H3	Quality of health services → Patient satisfaction	0.333	4.686	0.000	Significant
H4	Quality of health services → Patient loyalty	0.237	4.050	0.000	Significant
H5	Patient satisfaction → Patient loyalty	0.243	3.810	0.000	Significant

Source: Data Processed

The quality of health services on patient satisfaction was confirmed by a p-value of 0.000 and a T-statistic value of 4.686, so it can be concluded that the quality of health services has a positive and significant effect on patient satisfaction in this study. The quality of health services on patient loyalty is confirmed by a p-value of 0.000 and a T-statistic value of 4.050, so it can be concluded that the quality of health services has a positive and significant effect on patient loyalty in this study. Patient satisfaction has a positive and significant effect on patient loyalty, as confirmed by a p-value of 0.000 and a T-statistic value of 3.810. Therefore, it can be concluded that the hypothesis that patient satisfaction has a positive and significant effect on patient loyalty in this study is acceptable.

Table 10
Indirect Effect Test

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Description
Digital marketing → patient satisfaction→ Patient loyalty	0.064	2.486	0.014	Accepted
Quality of health service → patient satisfaction → Patient loyalty	0.081	3.118	0.002	Accepted

Source: Data Processed

Discussion

marketing (DM), quality of health service (SQ), patient satisfaction (PS), and patient loyalty (PL) at Rangkah health center. The five hypotheses proposed were tested using Partial Least Square - Structural Equation Modeling (PLS-SEM) method, and the results showed significant relationships among all variables, both direct and indirect.

The Effect of Digital Marketing on Patient Satisfaction and Patient Loyalty

Digital marketing has been empirically demonstrated to exert a significant influence on patient satisfaction and loyalty. The findings of this study indicate that digital marketing has a positive and significant effect on patient satisfaction. This result is consistent with the service marketing theory proposed by Kotler and Keller (2016), which posits that the utilization of digital media enhances access to information, facilitates interactive communication, and strengthens the brand image of healthcare services. Furthermore, this finding corroborates the research conducted by Weshah et al. (2021), which revealed that digital marketing within the healthcare sector contributes to increased levels of patient satisfaction due to the convenience of obtaining information related to services, appointment schedules, and medical consultations.

Empirical observations support these conclusions, as the majority of respondents in this study were within the productive age range and accustomed to utilizing digital platforms to access information. The demographic characteristics of the respondents, particularly the dominance of individuals with high digital engagement, further reinforce the effectiveness of digital marketing in fostering patient satisfaction.

The study also demonstrates that digital marketing has a significant impact on patient loyalty. This aligns with the findings of Weshah et al. (2021), which suggest that increased engagement with digital media in healthcare services enhances patients' intention to return, as they perceive greater convenience, connection, and service quality. Field data similarly support this outcome, as respondents—primarily digitally literate individuals of productive age—frequently access healthcare

information through social media platforms, resulting in a stronger sense of connection to healthcare providers and a higher propensity toward loyalty.

Moreover, the effect of digital marketing on patient loyalty is further strengthened by the mediating role of patient satisfaction. Patients who easily obtain accurate and timely information through digital media tend to report higher satisfaction with the services received, which subsequently enhances their loyalty. Thus, satisfaction functions as a crucial mediating variable that explains the mechanism through which digital marketing influences patient loyalty.

The Effect of Quality of Health Service on Patient Satisfaction and Patient Loyalty

The quality of health services also showed a significant effect on satisfaction and patient loyalty. The quality of healthcare services has a significant impact on patient loyalty. These results are in line with the study by Fatima, et al. (2018), which emphasizes that the quality of healthcare services is a major factor in shaping patient loyalty. Patient loyalty is shaped as many as by satisfaction, but is also shaped by the quality of healthcare services received by patients. The characteristics of the respondents, most of whom were patients with low visit frequency (1–2 times in the last 6 months), also support this result, because loyalty is not formed solely from service experience, but must first go through satisfaction. Furthermore, Service Quality has a significant effect on Patient Satisfaction. These results are consistent with the SERVQUAL theory from Parasuraman et al. (1988), which explains that patient satisfaction is determined by service quality, especially the dimensions of reliability, responsiveness, and empathy. This study is in line with Fatima, et al. (2018), who found that good service quality in regional health facilities directly increases patient satisfaction. Field observations also show that most respondents are patients with a medium to high level of education, so their expectations of service are more critical. This explains why service quality is a dominant factor in determining satisfaction.

Patient Satisfaction as a Mediating Variable

Patient satisfaction has a significant influence on patient loyalty and is proven to mediate the relationship between Digital Marketing and Patient Loyalty, as well as between quality of health service (SQ) and Patient Loyality (PL), based on the results of this indirect effect test, it strengthens the hypothesis that positive experiences in digital and face-to-face interactions will strengthen patients' emotional bonds and encourage loyalty to the services provided Patient satisfaction has a significant effect on patient loyalty. These results support the customer loyalty theory mentioned by Hasan (2017), which asserts that satisfaction is the basis for long-term loyalty. These findings are also in line with the research by Maqsood, et al. (2017), which proves that customer satisfaction with health services increases patients' willingness to make repeat visits. The phenomenon in the field shows that respondents who are satisfied with the service (for example, in terms of the friendliness

of medical personnel or the speed of service) tend to have higher loyalty. This is in line with the respondent's description, which shows that the group of patients who visit the health center more often are those who are satisfied with the quality of service they receive and are therefore willing to visit the health center again.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATION

The results of this study indicate that digital marketing and the quality of health services exert a positive and significant effect on patient satisfaction and patient loyalty at the Rangkah Health Center. Moreover, patient satisfaction is empirically proven to function as a mediating variable that strengthens the relationship between digital marketing, service quality, and patient loyalty. Therefore, it can be concluded that achieving sustainable patient loyalty requires the strategic integration of effective digital marketing initiatives and continuous enhancement of service quality. This conclusion is supported by empirical evidence derived from structural model analysis, which demonstrates consistent, significant, and theoretically sound relationships among all tested constructs.

The implications of this study underscore the critical importance of effectively managing the digitalization of healthcare communication, particularly within primary healthcare institutions such as puskesmas. The availability of informative, credible, and easily accessible digital content has been shown to increase patient satisfaction, which subsequently enhances patient loyalty. Additionally, dimensions of service quality—such as responsiveness and empathy—must be maintained and continuously improved. For policymakers within the public healthcare sector, these findings affirm that digital transformation and service quality reforms must be pursued concurrently as strategic measures for retaining patients over the long term and ensuring the sustainability of capitation-based funding mechanisms.

Nevertheless, this study is subject to several limitations. First, the scope is restricted to a single healthcare institution, namely the Rangkah Health Center; thus, caution is warranted when generalizing these findings to other puskesmas or healthcare institutions with different characteristics. Second, the quantitative method employed, which relies on respondents' perceptions through questionnaires, may not fully capture qualitative factors that influence patient loyalty, such as cultural norms and local social dynamics.

In light of these limitations, future research is recommended to extend the scope to include healthcare centers in diverse geographical and demographic contexts in order to assess the robustness and generalizability of the findings. Additionally, adopting a mixed-methods approach could yield deeper insights into patients' experiences with healthcare services. It is also advisable to incorporate objective data, such as actual visitation records or behavioral tracking, to complement perception-based data and provide a more comprehensive understanding of patient loyalty.

REFERENCES

Addo, A.A., Wang W., Dankyi, B.A., Olivier, J.A., Geoffrey, B.M., (2020). Sustainability of Health Institutions: The Impact of Service Quality and Patient Satisfaction on Loyalty. *European Journal of Business and management Research.* Vol.5, No.4, http://dx.doi.org/10.24018/ejbmr.2020.5.4.345.

Apriliani, D.E., Shinta, E.K., Arini A.N., (2023). Pengaruh *Digital Marketing,* Kualitas Produk dan Pelayanan terhadap Kepuasan Konsumen Batrisyia Herbal. *Jurnal Ilmiah Bidang ilmu Ekonomi.* Vol.21, No.1, pp470-479.

Chaffey, D., Ellis Chadwick. (2016). Digital Marketing Strategy, Implementation, and Practice. Seventh Edition. United Kingdom: Pearson Education Limited

Dastane, (2020). O. Impact of Digital Marketing on Online Purchase Intention: Mediation Effect of Customer Relationship Management. *Journal of Asian Business strayegy.* Vol.10, No.1, pp142-158.

Fatima, T., Malik, S.A., Shabbir, A. (2018). Hospital Healthcare Service Quality, Patient Satisfaction, and Loyalty. *International Journal of Quality & Reliability Management.* Vol.33, No.6. pp1195-1214.

Griffin, Jill. (2015). Customer Loyalty: Menumbuhkan dan Mempertahankan Kesetiaan pelanggan. Jakarta: Erlangga.

Hanif N., Suyanto, (2023). Pengaruh Kualitas Pelayanan, dan *Digital Marketing* terhadap Loyalitas Pelanggan Melalui Kepuasan Pelanggan sebagai Variabel Intervening pada Toko Bangunan Roemah Kita Gresik. *Sutomo Business Review.* Vol.4, No.2, pp130-145

Hair, J. F. et. al. (2022). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Los Angeles: SAGE Publications.

Hasan, Ali. (2017). *Marketing dan Kasus-Kasus Pilihan.* Yogyakarta: Center For Academic Publishing Service

Kotler, Philip, (2016), *Marketing Management.* Fifteen Edition. New Jersey. Prentice-Hall

Kotler, Phillp dan lane Keller. (2017). *Marketing Management.* 15th Edition. New Jersey: Pearson Pretice Hall, Inc.

Leninkumar, Vithya (2017). The Relationship between Customer Satisfaction and Customer Trust on Customer Loyalty. *International Journal of Academic Research in Business and Social Sciences.*Vol.7, No.4.

Liu, S., Li, G., Liu, N. (2021), The Impact of Patient Satisfaction on Patient Loyalty with the Mediating Effect of Patient Trust, *The Journal of Healthcare Organization, Provision, and Financing.* Vol.58. pp1-11.

Maqsood, M., Humera, M., Robina, k., Chanda, J., Ali, W., Syed, A. (2017). Effects of Hospitals Service Quality on Patients Satisfaction and Behavioural Intention of Doctors and Nurses. *Saudi Journal of Medical and Pharmaceutical Sciences.* Vol.3, pp556-567.

Masruroh, S., Dwi W., Muhaimin, Husnah K., Loso J., (2023). Pengaruh *Digital Marketing*, Kualitas Produk, dan Kualitas Pelayanan terhadap Kepuasan Konsumen. *Jurnal Ekonomi, Manajemen, dan Akuntansi.* Vol.9, No.6, pp.2464-2471

Meesala, A., Paul, J., (2016). Service Quality, Consumer Satisfaction,and Loyalty in Hospitals: Thinking for the Future. *Journal of Retailing and Consumer Services.* http://dx.doi.org/10.1016/j.jretconser.2016.10.011

Mesquita, F.D.R., Jaya, R.C. (2024). Pengaruh Digital Marketing dan Kualitas Pelayanan terhadap Kepuasan Konsumen dan Dampaknya terhadap Loyalitas Tais Market Dili. *Jurnal Ekonomi Bisnis, Manajemen, dan Akuntansi. Vol.4, No.2.*

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Reassessment of Expectations as a Comparison Standard in Measuring Service Quality: Implications for Further Research. *Journal of Marketing*, Vol.58 No.1, 111. https://doi.org/10.2307/1252255

Qashmal, M., Adam, M., Nizam, A. (2024), Evaluating the Influence of Digital Marketing, Service Quality, and Product Excellence on Loyalty Through the Mediating Role of Customer Satisfaction. *Indatu Journal of Management and Accounting,* Vol.2, No.22, pp55-67.

Tarigan, P.S., Wahyono, D., Kusumawardhani, T., Sairdama, S.S., Nugraha, A.R., Pengaruh Digital Marketing dan Brand Image Terhadap Minat Beli Produk Kosmetik Make Over. *Jurnal Ekonomi, Manajemen, dan Akuntansi*. Vol.9, No.4), p1431-1439

Weshah, G.A., Kakeesh, D.F., Al-Maitah, N.A. (2021). *Studies of Applied Economics.* Vol.39, No.7.

Zulhijjah, M., M., A., Said, M., (2022), Pengaruh Kualitas Pelayanan dan Digital Marketing terhadap Kepuasan Pelanggan pada PT. TIKI Jalur Nugraha Ekakurir Cabang Utama Banjarmasin, *Jurnal Bisnis dan Manajemen* Vol.1, No.2, http://ejurnal.poliban.ac.id/index.php/JBM

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