

## **The Effect of Marketing Information Systems on Outpatients Loyalty with Outpatients Satisfaction as a Mediating Variable at Hospital of Harapan Sehat Group**

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### **ABSTRACT**

The study was conducted to see the effect of marketing information systems on patient loyalty with patient satisfaction as a mediating variable at Harapan Sehat Group Hospital. The population in this study were Harapan Sehat Group Hospital outpatients totaling 80 respondents. This study uses a Structural Equation Model (SEM) approach with a measurement model using the SmartPLS version 3.2.9 program to measure the intensity of each research variable and a structural model to analyze data and research hypotheses. The results obtained show that the marketing information system has a significant effect on patient satisfaction, the marketing information system has a significant effect on patient loyalty, patient satisfaction has a significant effect on patient loyalty, and finally the marketing information system has a significant effect on patient satisfaction mediated by patient satisfaction.



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## **INTRODUCTION**

Hospital is a form of health service provider that can be established by the government and the private sector. Health services provided by hospitals include outpatient, inpatient, and emergency services involving medical and medical support aspects. Health services are a different type of service from goods. A good is an object, thing, or tool, while a service is an action or performance performed. Evaluation of the quality of health services in hospitals cannot be done by patients before they actually experience it. After receiving health services, patients will compare their experiences with the expectations they have. If the experience does not meet the patient's expectations, they will feel dissatisfied and will not remain loyal to the hospital. However, if the experience obtained matches or even exceeds expectations, the patient will feel satisfied and will maintain a long-term relationship with the hospital and become a loyal patient.

Hospitals as health service providers must be able to maintain patient satisfaction and maintain their loyalty. According to Kartika et al. (2023) loyal patients will not move and will continue to use these health services when needed. Patients with high loyalty will be good marketing and economical for the hospital. Most hospitals experience various problems, one of which is the achievement of patient visits that have not reached the target (Mosadeghrad, 2014). In today's digital era, hospital services and diverse consumer preferences have a significant impact on marketing policy making in hospital businesses in general. The ability and intelligence of hospital business actors is very important in studying the market competition situation and marketed opportunities to determine the quality of policies taken and also the ability to face the market. One important policy that must be formulated is to implement a good marketing information system and increase patient satisfaction.

This marketing information system is something that hospital businesses should look for in an effort to seize market opportunities. For example, in anticipating problems, hospital business actors need to look for integrated and reliable information. According to Kotler (2016) marketing information systems are people, tools, and procedures that are shown to collect, analyze, and display

the data needed accurately to facilitate marketing management in making decisions. Hendrata (2021) explains that the better the marketing information system, the higher the level of customer loyalty. These results support research conducted by Yuliani et al. (2023) which states that marketing information systems have an important role in increasing sales. In research conducted by Hendrata (2021); and Hidayatullah et al. (2020) found that marketing information systems have no direct effect on loyalty.

In the aspect of patient satisfaction related to loyalty, namely when patients are satisfied with the services provided by the hospital, they tend to be more inclined to continue to choose the hospital in the future. Satisfied patients tend to become loyal customers, by returning to use hospital services for their health needs and recommending them to others. This is in line with the statement of Ahri et al. (2023), namely satisfaction provides an impetus for patients to establish a strong relationship with the hospital. This is in line with research conducted by Hendrata et al. (2021); Yaqub et al. (2019) which found that customer satisfaction has a positive effect on customer loyalty. In the research of Ahri et al. (2023) found that customer satisfaction has no effect on customer loyalty.

Based on the phenomena that occur and comparisons with previous research, the objectives achieved from this study are to determine 1) the effect of marketing information systems on patient satisfaction, 2) the effect of marketing information systems, and patient satisfaction on patient loyalty 3) the effect of marketing information systems on patient satisfaction mediated by patient satisfaction. The research is expected to provide extensive benefits for practitioners, academics, companies, and other stakeholders in understanding and managing patient loyalty at Harapan Sehat Group Hospital. Based on the description and results of previous research, there is still a research gap. So the researcher intends to conduct a study entitled "The Effect of Marketing Information Systems on Patient Loyalty with Patient Satisfaction as a Mediating Variable at Hospital of Harapan Sehat Group".

## **LITERATURE REVIEW**

### **Loyalty**

Loyalty, according to Kotler et al. (2018), is a steadfast commitment to continue using or subscribing to a product or service in the future, despite external circumstances or marketing initiatives that would tempt customers to move to other goods. Customer loyalty is further defined by Hendrata et al. (2021) as attitudes and intents to behave, which are shown via things like a commitment to make repeat purchases, referrals to others, and the financial capacity to spend more. Customer loyalty, according to Putra et al. (2022), is the conduct of clients who make a promise to consistently purchase the same product over time.

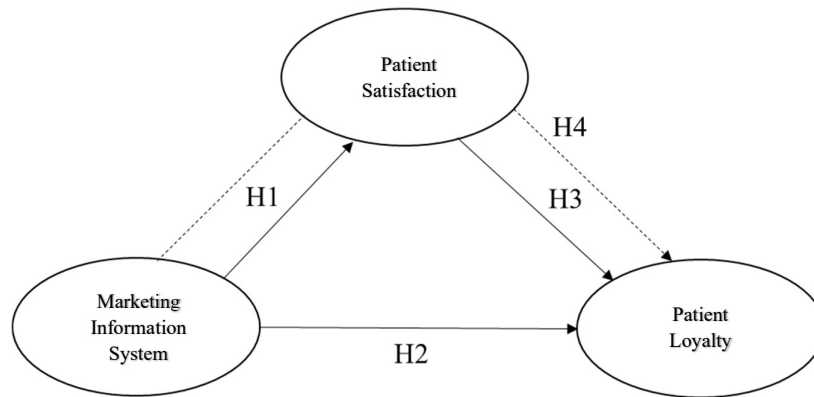
### **Marketing Information System**

According to Hendrata et al. (2021) a marketing information system is a system involving people, tools, and procedures designed to collect, analyze, and present data accurately. The aim is to provide support to marketing management in the decision-making process. Furthermore, Erpurini (2019) defines a marketing information system as consisting of people, equipment and procedures for collecting, sorting, analyzing, evaluating and distributing information needed in a timely and accurate manner to decision makers in the marketing field and is useful for companies in making critical decisions about existing opportunities and opportunities.

### **Customer Satisfaction**

According to Erpurini (2019) customer satisfaction is an emotional evaluation that arises after someone compares the performance or results of a product with their expectations. Customer satisfaction occurs when the performance or results of the product meet or even exceed previously thought expectations. Customer satisfaction is a positive feeling that can lead to customer loyalty and recommendations to others. Ahri et al. (2023) define that satisfaction is the feeling of consumers after feeling between what they have received and the expectations they want. Customers will feel satisfied if the value provided by the product or service satisfies customers for a long time. Patient satisfaction is the level of feelings that arise after a patient gets health services and compares with what is expected.

From the previous theoretical description, the research model is presented as below:



**Figure 2. Framework of Thought**

The hypotheses proposed in the study include:

**H1** : Marketing information systems affect patient satisfaction

**H2** : Marketing information systems affect patient loyalty

**H3** : Patient satisfaction affects patient loyalty

**H4**: Marketing information systems affect patient loyalty mediated by patient satisfaction.

## RESEARCH METHODS

In order to explain how one variable influences or is accountable for changes in other variables, this study employs a quantitative technique with an explanatory or causal design (Cooper & Schindler, 2017). In this study, a mediating variable (Z) is present in addition to the dependent variable (X) and the independent variable (Y). The marketing information system is the study's independent variable, and patient loyalty is its dependent variable. Patient pleasure is the next mediating factor. Primary data sources were gathered through a survey that was done utilizing an online questionnaire with the use of Google Forms as the data collecting tool for this project. All outpatients at Hospital of Harapan Sehat Group, which includes Jatibarang, Slawi, Pemalang, and Bumiayu Hospital, made up the study's population. The minimal sample size for SEM, according to Hair et al. (2014), is (Number of indicators) x (5 to 10 times). According to these specifications, the required minimum sample size for this study is: (15) x 5 = 75 participants. According to the aforementioned calculation, the minimum number of samples required for this study was 75 outpatient responders from the hospitals in Jatibarang, Slawi, Pemalang, and Bumiayu. With a measurement model that measures the intensity of each research variable using the Smart PLS version 3.2.9 software and a structural model that analyzes the data and research hypotheses, this study employs a Structural Equation Model (SEM) methodology.

## RESULTS AND DISCUSSION

### Calibration of Research Instruments

Testing the data analysis requirements in this study is obtained from the results of the PLS algorithm calculation which is shown the value of factor loading or outer loading to determine convergent validity, cross loading to determine discriminant validity, composite reliability, Cronbach alpha and AVE (Average Variance Extracted) value to determine reliability.

**Table 2. Factor Loading Value of Research Variables**

Variables	Indicator	Loading Factor Value	Terms	Description
Marketing Information System	SIP1	0.819	> 0.7	Valid
	SIP2	0.758	> 0.7	Valid
	SIP3	0.788	> 0.7	Valid
	SIP4	0.771	> 0.7	Valid
	SIP5	0.906	> 0.7	Valid
Patient	KP1	0.879	> 0.7	Valid

Variables	Indicator	Loading Factor Value	Terms	Description
Satisfaction	KP2	0.789	> 0.7	Valid
	KP3	0.853	> 0.7	Valid
	KP4	0.765	> 0.7	Valid
	KP5	0.892	> 0.7	Valid
	LP1	0.891	> 0.7	Valid
Patient Loyalty	LP2	0.865	> 0.7	Valid
	LP3	0.928	> 0.7	Valid
	LP4	0.905	> 0.7	Valid
	LP5	0.889	> 0.7	Valid

Source: Results of Data Processing with SmartPLS 3.2.9 (2023)

All loading factor values of each indicator used to measure all variables are known to be greater than 0.7. This demonstrates that all metrics employed to gauge patient happiness, patient loyalty, and marketing information system variables are accurate or have achieved convergent validity. As a result, the researcher has decided to incorporate all of the indicator items for each variable.

The overall loading factor is depicted in Figure 2 below.

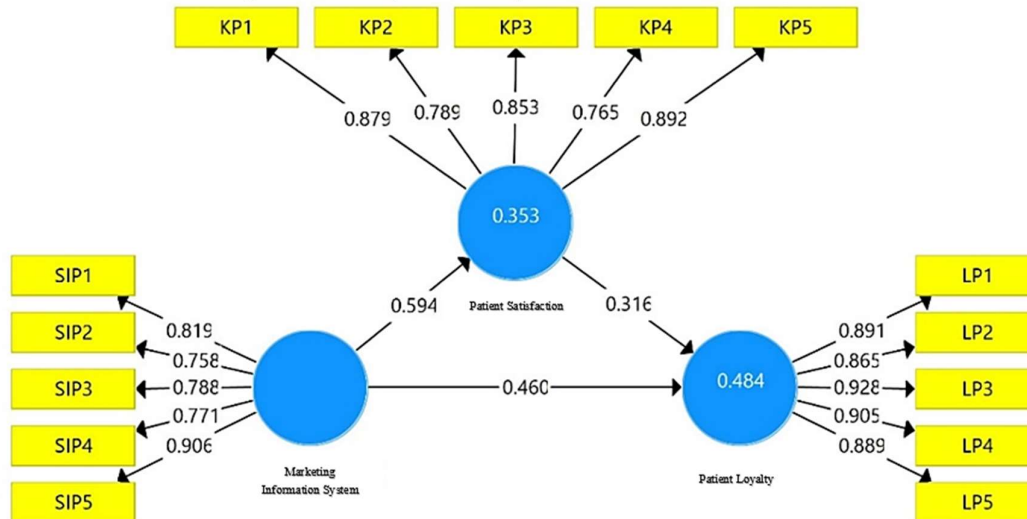


Figure 2. Outer Model

Table 3. AVE (Average Variance Extraction) Results of the Research Model AVE (Average Variance Extraction) Results of the Research Model

Variables	AVE Value
Marketing Information System	0.657
Patient Satisfaction	0.701
Patient Loyalty	0.803

Source: Results of Data Processing with SmartPLS 3.2.9 (2023)

The marketing information system factors, patient happiness, and patient loyalty shown in Table 3 provide an explanation for the findings of discriminant validity testing by looking at the AVE value. All variables in the study model have values over 0.5, meaning that the AVE value required for discriminant validity testing has been met. Consequently, both the convergent validity test and the discriminant validity test were successful.

**Table 4. Composite Reliability Results of the Research Model**

Variables	Composite Reliability
Marketing Information System	0.905
Patient Satisfaction	0.921
Patient Loyalty	0.953

Source: Results of Data Processing with SmartPLS 3.2.9 (2023)

Each variable in the study model has a composite reliability value over 0.7, with the marketing information system variable having the lowest value of 0.905 and the patient loyalty variable having the highest value of 0.933. These findings indicate that the research model satisfies the composite reliability requirement.

**Table 5. Cronbach's Alpha Results of the Research Model**

Variables	Cronbach's Alpha
Marketing Information System	0.870
Patient Satisfaction	0.893
Patient Loyalty	0.939

Source: Results of Data Processing with SmartPLS 3.2.9 (2023)

Each variable in the study model has a Cronbach's alpha value over 0.6, with the patient loyalty variable having the greatest value (0.939) and the marketing information system variable having the lowest value (0.870). These findings indicate that the study model satisfies the Cronbach's alpha requirement.

### Structural Model Testing

#### Test Coefficient of Determination / Square ( $R^2$ )

The coefficient of determination seeks to quantify the extent to which the dependent variable's variation can be explained by the model. There is a range of 0 to 1 in the coefficient of determination. The  $R^2$  number, or coefficient of determination, is very near to 1. The R-Square ( $R^2$ ) score reveals how well the equation's proposed independent variables can account for the dependent variable.

**Table 6. Test Results of the Coefficient of Determination**

Variables	R Square Value
Patient Satisfaction	0.353
Patient Loyalty	0.484

Source: Results of Data Processing with SmartPLS 3.2.9 (2023)

The R-square value for the patient satisfaction variable is 0.353, which means that 35.3% of the patient satisfaction variable may be impacted by the marketing information system. This number can be used to describe the relationship between constructs. Patient satisfaction and the marketing information system may each affect 48.4% of the patient loyalty variable, according to the R-square value of 0.484 for this variable.

### Hypothesis Test

In this study, the path coefficient value, t-statistics, and p-values are used for hypothesis testing. T-statistics  $> 1.96$  or a p-value of 0.05 (5%) are the general guidelines that were utilized in this study to determine if there was a significant relationship between the independent and dependent variables. Table 7 displays the outcomes of the hypothesis testing.

The path coefficient column may be used to evaluate the relationship between variables, and the T-statistic or P-value column can be used to evaluate the degree of significance.

**Table 7. Results of Path Coefficients, t-Statistics, and P-Values Results of Path Coefficients, t-Statistics, and P-Values**

	Original Sample	T Statistics	P-Values	Conclusion
Marketing Information System → Patient Satisfaction	0.594	5.754	0.000	H1 Accepted
Marketing Information System → Patient Loyalty	0.460	3.602	0.000	H2 Accepted
Patient Satisfaction → Patient Loyalty	0.316	2.345	0.019	H3 Accepted
Marketing Information System → Patient Satisfaction → Patient Loyalty	0.188	2.035	0.042	H4 Accepted

Source: Results of Data Processing with SmartPLS 3.2.9 (2023)

The table above shows that all research hypotheses can be accepted, this is because this is because it obtained a sig. value smaller than 0.05.

## Discussion

### The Effect of Marketing Information Systems on Patient Satisfaction

The first hypothesis shows that the marketing information system has a significant effect on patient satisfaction in patients at Hospital X. This shows that the higher the quality and effectiveness of the marketing information system implemented, the higher the level of patient satisfaction at X Hospital. The findings of this study are consistent with research by Erpurini and Zulyanti (2019), which found that marketing information systems have a big impact on consumer happiness. Customers' pleasure is significantly impacted by the marketing information system, according to the same findings presented by Erpurini (2019).

### The Effect of Marketing Information Systems on Patient Loyalty

The second hypothesis shows that marketing information systems have a significant effect on patient loyalty in patients at Hospital X. This shows that the higher the quality and effectiveness of the marketing information system implemented, the higher the level of patient loyalty at X Hospital. A good marketing information system includes data collection from various relevant sources, both internal and external to the company. The data collected includes information about markets, customers, competitors, industry trends, and environmental factors that affect the company's marketing activities. These results support research conducted by Yuliani et al. (2023) which states that marketing information systems have an important role in increasing sales. In research conducted by Hendrata (2021); and Hidayatullah et al. (2020) found that marketing information systems have no direct effect on loyalty.

### The Effect of Patient Satisfaction on Patient Loyalty

The third hypothesis shows that patient satisfaction has a significant effect on patient loyalty in patients at Hospital X. This shows that the higher the patient satisfaction with the services provided, the higher the level of patient loyalty at Hospital X. Patient satisfaction is a measure of the performance of the health care system. In this case, patient satisfaction describes the success of health services in meeting needs (Wartiningsih and Setiawan, 2023). According to Wartiningsih (2022) patient satisfaction can be increased through comprehensive services, including promotive, preventive, and rehabilitative services. The results of this study are in line with research conducted by Hendrata et al. (2021), Yaqub et al. (2019) which found that customer satisfaction has a positive effect on customer loyalty.

### The Effect of Marketing Information Systems on Patient Loyalty Mediated by Patient Satisfaction

The fourth hypothesis shows that the marketing information system has a significant effect on patient satisfaction mediated by patient satisfaction in patients at X Hospital. This shows that there is an indirect influence between the marketing information system on patient loyalty mediated by patient

satisfaction. A good marketing information system can better collect and analyze data about customer needs and preferences. With a deep understanding of individual needs, hospitals can provide services that are more suitable and meet customer expectations. This can increase customer satisfaction and in turn, encourage patient loyalty. The results of this study are in line with research conducted by Hendrata et al. (2021) that customer satisfaction perfectly mediates the effect of marketing information systems on customer loyalty.

## CONCLUSION

Referring to the research results that have been described, it can be seen that the marketing information system has a significant effect on outpatient satisfaction, the marketing information system has a significant effect on patient loyalty, patient satisfaction has a significant effect on outpatient loyalty, and finally the marketing information system has a significant effect on outpatient satisfaction mediated by patient satisfaction. The limitation of the research is that the sample used is only outpatients of Harapan Sehat Group Hospital, so it does not reflect the condition widely and cannot describe the actual situation. Finally, the variables used in this study are limited because they do not use all the factors that can affect customer loyalty. Based on the results and limitations of this study, suggestions for future research are that future studies can expand the research sample by involving a wider sample and representing a larger population. In addition, it is also recommended to use other hospitals as research subjects. Future research can also use other research variables that are thought to have an effect on customer loyalty, such as price factors, hospital reputation, service quality, and accessibility, which will provide a better understanding.

## REFERENCES

- Ahri, R. A., Puspitasari, A. W., Haeruddin, H., Yuliati, Y., Hardi, I., Yusuf, R. A., & Amelia, A. R. (2023). Pengaruh Kualitas Pelayanan Dan Citra Merek Terhadap Minat Kembali Pasien Rawat Inap Melalui Kepuasan Sebagai Mediasi Di Rumah Sakit Umum Sisaldjufrie Palu. *Jurnal Ekonomika*, 7(1), 171-184.
- Cooper, Donald R., Pamela S. Schindler (2017), Metode Penelitian Bisnis, Edisi 12, Jilid 1, Terjemahan oleh Rahma Wijayanti dan Gina Gania, Jakarta: Salemba Empat.
- Erpurin, W. (2019). Pengaruh Sistem Informasi Pemasaran Dan Kualitas Pelayanan Terhadap Kepuasan Pelanggan Pada Hotel éL Royale Bandung. *JIM UPB (Jurnal Ilmiah Manajemen Universitas Putera Batam)*, 7(2), 181-188.
- Erpurini, W., & Zulyanti, R. (2019). Pengaruh Sistem Informasi Pemasaran Dan Kualitas Produk Terhadap Kepuasan Pelanggan. *Jurnal Sains Manajemen dan Bisnis Indonesia*, 9(2), 230-237.
- Hair, Joseph F., William C. Black, Barry J. Babin, Rolph E. Anderson, & Ronald L. Tatham. (2014). *Multivariate Data Analysis*. New Jersey: Pearson Education.
- Hendrata, K., Yasa, P. N. S., & Indiani, N. L. P. (2021). The Influence of Marketing Information Systems on Customer Loyalty in the Denpasar Automotive Industry in the Time of Covid-19. *Jurnal Ekonomi & Bisnis JAGADITHA*, 8(1), 81-89.
- Hidayatullah, S., Rachmawati, I. K., Aristanto, E., & Patalo, R. G. (2020). Peran Sistem Informasi Pemasaran, Kualitas Pelayanan dan Entrepreneurial marketing serta Kepuasan Terhadap Loyalitas Generasi Milenial Berkunjung ke Tempat Wisata. *Jurnal Ilmiah Bisnis Dan Ekonomi Asia*, 14(1), 74-83.
- Kartika, R. C., Triana, D., Puspita, S. D., Jannah, M., & Ayu, D. P. (2023). Upaya Peningkatan Loyalitas Pasien melalui Peningkatan Kepuasan Pasien di Rumah Sakit. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal*, 13(3), 701-708.
- Kotler, P. (2016). *Manajemen Pemasaran edisi 12 Jilid 1 & 2*. Jakarta: PT. Indeks.

- Kotler, P., & Armstrong, G (2018). *Principles of Marketing Global Edition 17th Edition*. London: Pearson Education.
- Mosadeghrad, A.M. (2014) Factors Affecting Medical Service Quality. *Iranian Journal of Public Health*, 43, 210-220.
- Putra, A. R., Rudiansyah, M. M. D. H., Darmawan, D., Mardikaningsih, R., & Sinambela, E. A. (2022). Pengaruh Gaya Hidup, Lingkungan Fisik, dan Persepsi Harga terhadap Loyalitas Pelanggan Lottemart. *Jurnal Ekonomi dan Manajemen*, 2(1), 71-85.
- Wartiningsih, M. (2022). Patient Satisfaction Improvement by Comprehensive Holistic Services at X Primary Health Care Surabaya. *KEMAS: Jurnal Kesehatan Masyarakat*, 18(2).
- Wartiningsih, M., & Setyawan, F. E. B. (2023). Analisis Kepuasan dan Loyalitas Pasien di Rumah Sakit Kristen Mojowarno. *Jurnal Manajemen Kesehatan Yayasan RS. Dr. Soetomo*, 9(1), 196-208.
- Yaqub, R. M. S., Halim, F., & Shehzad, A. (2019). Effect of service quality, price fairness, justice with service recovery and relational bonds on customer loyalty: Mediating role of customer satisfaction. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 13(1), 62-94.
- Yuliani, I. K., Savitri, C., & Faddila, S. P. (2023). Peran Sistem Informasi Pemasaran dalam Meningkatkan Penjualan pada PT. Machiko Jaya Indonesia. *J-MAS (Jurnal Manajemen dan Sains)*, 8(1), 814-819.