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Optimizing Customer Loyalty Through The Information System Customer Approach at Harapan Hospitals

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ABSTRACT

This research aims to optimize hospitals customer loyalty through a *Customer Relationship Management* (CRM) approach. In the increasingly competitive healthcare industry, customer satisfaction is key to retaining and attracting new customers. SERVQUAL is one of the methods we use in this study so that by implementing CRM, hospitals can understand patient needs, improve service quality, and build long-term relationships. This study uses a quantitative approach with a survey method of 106 respondents who are hospital customers. The results of the analysis show that the implementation of CRM has a significant effect on patient satisfaction and loyalty. Although the overall satisfaction rate reached 84.9%, several aspects needed to be improved, such as the waiting time of doctors and the speed of the registration process. Recommendations to improve the effectiveness of CRM in hospitals include the development of digital systems and staff training.

I. INTRODUCTION

The healthcare industry, especially hospitals, faces increasingly fierce competition. The increasing number of private hospitals and clinics and changing consumer preferences push hospitals to improve service quality and build customer loyalty. In this context, customer satisfaction is a very important factor because customers who are satisfied with the service tend to be loyal and use the service continuously. Customer loyalty is one of the key factors for an organization's success in retaining existing customers and attracting new customers [1], [2]. Therefore, the development of hospitals is one of the key pillars in shaping the future of healthcare institutions. It is widely understood that hospitals have become an essential need for society, and they must provide a sense of comfort to patients undergoing treatment. Building on this, it is crucial to recognize that *Customer Relationship Management* (CRM) is a fundamental pillar that must be significantly enhanced within hospital management. Issues such as patient complaints regarding inadequate services and subpar facilities must be addressed, as they can directly impact patient loyalty to the Hospital. To gain a deeper understanding of CRM, you may refer to our published book, available on Amazon: We Are What We Choose: Smart Startup Business Model, The Seven Stages of Smart Startup Profiling https://a.co/d/c5pF5Gl [3]

In the healthcare industry, understanding and managing customer loyalty is very important to maintain business continuity. The increasing number of private hospitals and clinics, as well as changing consumer preferences, are encouraging hospitals to improve service quality and build customer loyalty [4]. One approach that can be used to achieve this goal is *Customer Relationship Management* (CRM). CRM is an integrated business approach that focuses on building and maintaining long-term customer relationships. Using CRM, hospitals can better understand customer needs, improve service quality, and build loyalty [5].

Hospital CRM applications can use digital technology to provide easy and convenient customer service access. For example, a mobile application or website that allows customers to book services, access health information, and communicate with hospital staff. Responsive and informative online services can also improve customer satisfaction [6]. If the services provided are considered valuable, then customers will feel satisfied with the services provided by the Hospital. Key Elements of Hospital CRM: (1) Patient Data

Administration: Centralized Database – A CRM system consolidates patient information, including demographics, medical history, and treatment plans, enabling healthcare providers to access detailed patient profiles. Data Security – Ensures compliance with standards such as HIPAA to maintain patient confidentiality and data protection. (2) Patient Engagement: Communication Tools – Utilizes SMS, email, and mobile applications to send appointment reminders, post-treatment instructions, and health recommendations. Feedback Mechanisms – Leverages surveys and feedback forms to collect patient opinions and enhance service quality. (3) Personalized Care: Tailored Communication – Uses patient data to personalize communication and marketing initiatives, including targeted health campaigns based on patient history. Care Coordination – Facilitates collaboration among healthcare providers to ensure a seamless patient experience. (4) Appointment Coordination: Online Scheduling allows patients to book, reschedule, or cancel appointments through an intuitive interface. Automated Reminders – Reduces no-show rates by sending automatic reminders through preferred communication channels. (5) Analytics and Reporting: Patient Insights – Analyzes data to identify trends in patient behavior, treatment outcomes, and service utilization. Performance Metrics – Monitors key performance indicators (KPIs) to assess the effectiveness of CRM initiatives. (5) Marketing and Engagement: Targeted Campaigns – Utilizes CRM data to develop focused marketing initiatives for healthcare services, wellness programs, and community outreach. Patient Retention Strategies – Design retention initiatives, including loyalty programs and health education workshops. Furthermore, there are some benefits of CRM in Healthcare Institutions: (1) Enhanced Patient Satisfaction – Personalizing interactions and optimizing processes significantly improve the overall patient experience; (2) Increased Efficiency – Automating administrative procedures reduces staff workload, allowing healthcare professionals to focus on patient care, (3) Improved Health Outcomes – Coordinated care and follow-up efforts lead to better health outcomes and increased patient adherence to treatment regimens, (4) Strengthened Communication – Enhancing interactions between patients and healthcare providers fosters trust and engagement. Challenges in Implementing CRM: (1) Integration with Existing Systems – Ensuring seamless CRM integration with Electronic Health Records (EHR) and other hospital systems, (2) Staff Training – Providing comprehensive training for personnel to use the CRM system and understand its benefits efficiently, (3) Data Privacy Concerns – Addressing issues related to data security and patient confidentiality to maintain trust and compliance.

The essential elements of a CRM in a hospital include patient data administration, patient engagement, specialized care, appointment coordination, analysis and reporting, and promotion and engagement. By optimizing these elements, hospitals can improve patient satisfaction, operational efficiency, and health outcomes [1], [2]. The advantages of implementing CRM in health institutions include increased patient satisfaction, increased efficiency, improved health outcomes, and improved communication between patients and healthcare providers [7], [8].

However, there are several obstacles in running CRM in hospitals, such as integration with existing systems, staff training, and data privacy issues [9]. To address these challenges, this study aims to optimize customer loyalty through the *Customer Relationship Management* (CRM) approach in hospitals. This research will explore how hospitals can leverage digital technology and CRM strategies to improve customer satisfaction and build long-term loyalty.

By understanding and managing customer loyalty through a CRM approach, hospitals can improve patient satisfaction, operational efficiency, and better health outcomes [10], [11].

This research aims to optimize customer loyalty through the *Customer Relationship Management* (CRM) approach in hospitals. This research will explore how hospitals can leverage digital technology and CRM strategies to improve customer satisfaction and build long-term loyalty.

II. RESEARCH METHODOLOGIES

A. *Type of Research*

This research will use a quantitative approach. A quantitative approach was chosen to measure and analyze the factors that affect customer loyalty in the Hospital in a systematic and measurable manner. The categorical nature of this study refers to categorizing the variables studied, especially the dependent variable (customer loyalty), which will be categorized into several levels, such as high, medium, and low. This allows for a more specific analysis of factors that can increase customer loyalty.

Figure 1. The Process of Research

B. *Place and time of research*

This research will be carried out in the Hospital. The Hospital was chosen because it is one of the hospitals in the country that has implemented the Customer Relations Management (CRM) application. CRM is a business strategy that builds strong, long-term customer relationships. CRM involves using technology to collect and analyse customer

data and manage interactions with customers. CRM applications can help hospitals to increase customer satisfaction, build customer loyalty, and increase profitability.

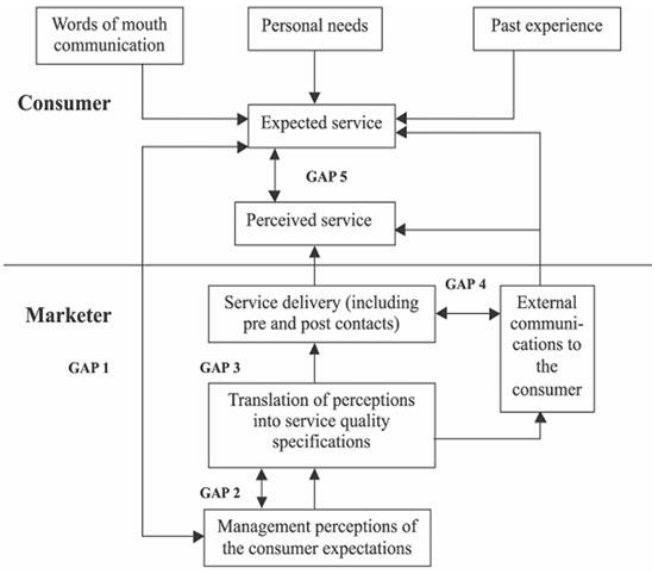

Figure 2. Model of SERVQUAL

C. SERVQUAL Model

Formulated service quality as a five-dimensional architecture to create the widely recognized SERVQUAL instrument. The five dimensions of SERVQUAL are: Tangibles, Empathy, Assurance, Reliability, and Responsiveness. Tangibles refer to the physical infrastructure, apparatus, and the presentation of staff. Empathy denotes the compassionate, personalized attention the company offers to its clientele. Assurance denotes the expertise and politeness of personnel, as well as their capacity to engender trust and confidence. Reliability denotes the capacity to deliver the promised service consistently and precisely, while Responsiveness signifies the readiness to assist clients and offer timely service. The items for each dimension have been altered in numerous prior research to accommodate specific contexts.[12]

The concept of SERVQUAL by exploring organizational strategies to align customer expectations and perceptions. They emphasize the importance of understanding the psychological dynamics of customers, such as how expectations are formed through previous experiences and external communication. The book also highlights management practices to reduce service quality "gaps", such as staff training and customer satisfaction-oriented service process design.[13] Carman tested the empirical validity of the SERVQUAL model in the context of healthcare and retail. The results of his research confirm that all five dimensions of SERVQUAL are relevant, but suggest that the weight of each dimension may vary depending on the type of service. For example, *physical evidence* is more critical in hospitals, while *responsiveness* is dominant in retail. The study also criticizes the limitations of the original model's generalizations and recommends adaptation of questionnaire items as per specific contexts.[14]

D. Population and sample

The population participating in this study is hospital customers, both patients and patient companions. Participants will be selected by accidental random sampling, which is the selection of samples based on customers who are met at that time and are willing to be respondents, for example, outpatients, inpatients, and long-term patients, with the following criteria.

Inclusion criteria

1. Hospital service users, either their family members or direct users, within the last year.
2. Respondents must be able to read and write well
3. Respondents must be able to use cell phones
4. Currently in a hospital environment
5. Willing to be a respondent

Exclusion Criteria

1. The service user is experiencing pain
2. Experiencing a mental disorder

E. Data tabulation

Data will be collected through a questionnaire, which was validated through expert judgment to ensure content validity. Three experts in healthcare management and customer relationship management (CRM) evaluated the questionnaire for relevance, clarity, and alignment with the study's objectives. The Content Validity Ratio (CVR) and Content Validity Index (CVI) were calculated based on their feedback, with items scoring below the Lawshe's threshold ($CVR \geq 0.99$ for 3 experts) revised or removed. The finalized questionnaire will then be distributed to research participants at the hospital. The collected data will be analysed using logistic regression to explore factors affecting customer loyalty, focusing on the influence of CRM implementation while controlling for variables such as service quality, customer satisfaction, and demographic factors. The study sample consists of 106 hospital customers selected through accidental random sampling.

F. Analysis Data

The data will be analysed using logistic regression with SPSS to identify factors influencing customer loyalty in the hospital. The analysis will specifically examine the impact of CRM implementation on loyalty, while controlling for other variables such as service quality, customer satisfaction, and demographic factors. Logistic regression is chosen due to its suitability for modelling binary or categorical outcomes, aligning with the study's goal of predicting the likelihood of loyalty [15]. Prior to analysis, the validity and reliability of the research instrument will be rigorously tested through content validity (expert judgement) and internal consistency checks (Cronbach's Alpha), ensuring the robustness of the measurement scales.

Customer satisfaction is measured using a modified SERVQUAL framework, adapted into a binary scale (satisfied/dissatisfied) to enhance respondent clarity and reduce survey complexity. Each of SERVQUAL's five dimensions—reliability, assurance, tangibles, empathy, and responsiveness—is translated into direct questions (e.g., *'Were our facilities satisfactory?'*) with yes/no responses. This adaptation is supported by studies demonstrating the validity of simplified scales in service quality research [16], [17]. The binary satisfaction scores are then integrated as a key predictor variable in the logistic regression model, allowing for a focused analysis of how perceived service quality interacts with CRM efforts to drive loyalty. This approach also aligns with prior healthcare studies that successfully applied SERVQUAL-derived metrics to assess patient satisfaction [18]

III. Result and Discussions

A. *Respondents*

1. Characteristics of Responding

TABLE 1.
CHARACTERICS OF RESPONDING

Category	Age		
	Frequency	**Percent**	**Valid Percent**
18-30	62	58,5	58,5
31-45	28	26,4	26,4
46-60	14	13,2	13,2
61+	2	1,9	1,9
Total	106	100	100
Category	**Gender**		
	Frequency	**Percent**	**Valid Percent**
Man	33	31,1	31,1
Woman	73	68,9	68,9
Total	106	100	100
Category	**Visit**		
	Frequency	**Percent**	**Valid Percent**
1-2 times	53	50	50
3-5 times	29	27,4	27,4
>5	24	22,6	22,6
Total	106	100	100
Category	**Registration**		
	Frequency	**Precent**	**Valid Percent**
Common	36	34	34
BPJS	67	63,2	63,2
Other	3	2,8	2,8
Total	106	100	100

Based on the results of the analysis of respondent characteristics, out of a total of 106 respondents, the majority were in the age group of 18-30 years with a percentage of 58.5% (62 people), followed by the age group of 31-45 years of age by 26.4% (28 people), the age group of 46-60 years by 13.2% (14 people), and the age group over 61 years by 1.9% (2 people). Judging from gender, the respondents were dominated by women as many as 68.9% (73 people), while male respondents were 31.1% (33 people). In terms of the frequency of visits, 50% of respondents (53 people) visited 1-2 times, 27.4% (29 people) visited 3-5 times, and 22.6% (24 people) visited more than 5 times. Meanwhile, for the type of registration, the majority of respondents used the BPJS route, 63.2% (67 people), followed by general registration by 34% (36 people) and others by 2.8% (3 people).

2. Variables Frequency

TABLE 2.
VARIABLE FREQUENCY

Ease of Process to Get Information				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	18	17	17
	Good	88	83	83
	Total	106	100	100
Security and Safeguarding of Personal Data				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	11	10,4	10,4
	Good	95	89,6	89,6
	Total	106	100	100
Speed of the Registration Process				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	24	22,6	22,6
	Good	84	77,4	77,4
	Total	108	100	100
Hospitality of Registration Staff				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	23	20,7	20,7
	Good	88	79,3	79,3
	Total	111	100	100
Clarity and Ease of Online Registration				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	21	19,8	19,8
	Good	85	80,2	80,2
	Total	106	100	100
Ease of Providing Suggestions or Feedback				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	26	24,5	24,5
	Good	80	75,5	75,5
	Total	106	100	100
Clarity of information provided by staff				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	15	14,2	14,2
	Good	91	85,8	85,8
	Total	106	100	100
Response to Questions from the Website				

		Frequency	Percent	Valid Percent
Valid	Less	29	27,4	27,4
	Good	77	72,6	72,6
	Total	106	100	100
Ease of Making Appointments Through the Website				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	23	21,7	21,7
	Good	83	78,3	78,3
	Total	106	100	100
Appointment Reminder Effectiveness				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	22	20,8	20,8
	Good	84	79,2	79,2
	Total	106	100	100
Flexibility to Change or Cancel a Visit				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	19	17,9	17,9
	Good	87	82,1	82,1
	Total	106	100	100
Doctor Wait Time				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	27	25,5	25,5
	Good	79	74,5	74,5
	Total	106	100	100
Attractiveness of Hospital Programs Offered				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	21	19,8	19,8
	Good	85	80,2	80,2
	Total	106	100	100
Benefits of Hospital Health Counseling Activities				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	26	24,5	24,5
	Good	80	75,5	75,5
	Total	106	100	100
Variety of Health Programs Offered				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	19	17,9	17,9
	Good	87	82,1	82,1
	Total	106	100	100
Hospital Program Information				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	19	17,9	17,9
	Good	87	82,1	82,1
	Total	106	100	100
Clarity of Hospital Rules				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	14	13,2	13,2
	Good	92	86,8	86,8
	Total	106	100	100
Suitability of the Visiting Schedule with Needs				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	14	13,2	13,2
	Good	92	86,8	86,8
	Total	106	100	100
Clarity of Implementation of Accepted Safety Rules				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	7	6,6	6,6
	Good	99	93,4	93,4
	Total	106	100	100
Patient Privacy Rules During Treatment				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	10	9	9
	Good	101	91	91
	Total	111	100	100
Speed of Direct Registration Process				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	26	24,5	24,5
	Good	80	75,5	75,5
	Total	106	100	100
Clarity of Fee Information and Payment Methods				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	10	9,4	9,4
	Good	96	90,6	90,6
	Total	106	100	100
Response Speed to Complaints or Questions				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	24	21,6	21,6
	Good	87	78,4	78,4
	Total	111	100	100
Administrative Completion Process				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	14	13,2	13,2
	Good	92	86,8	86,8
	Total	106	100	100
Overall Satisfaction Rate				
		Frequency	**Percent**	**Valid Percent**
Valid	Less	16	15,1	15,1
	Good	90	84,9	84,9
	Total	106	100	100

In the context of a systematic assessment of the quality of health services, the use of "Good" and "Less" assessment criteria allows for an in-depth analysis of various dimensions of hospital services. The "Good" criterion is defined as a satisfaction level above 80%, which is a benchmark for the successful implementation of the service strategy, while the "Less" category indicates areas that require continuous intervention and improvement. This is in line with the finding

that out of a total of 106 respondents, the overall satisfaction level reached 84.9% with a "Good" rating.

The results of the analysis of patient satisfaction with hospital services showed that out of a total of 106 respondents, the overall satisfaction level reached 84.9% with a "Good" rating. The aspects of services that received the highest ratings were the clarity of the implementation of safety rules (93.4%), patient privacy rules during treatment (91%), and clarity of cost information and payment methods (90.6%), followed by the security and safeguarding of personal data (89.6%), and the clarity of hospital rules (86.8%).

Some aspects that still need improvement based on the significant percentage of "Poor" assessments include: doctor waiting time (25.5%), speed of direct registration process (24.5%), health counselling activities (24.5%), response from the website (27.4%), and friendliness of registration staff (20.7%). This data indicates that although the service is generally considered satisfactory, there is still room for improvement, especially in terms of waiting time, service speed, and interaction with staff.

B. Result

TABLE 3.
VARIABLES IN THE EQUATION

	B	S.E.	Forest	df	Mr.	Exp(B)
Constant	1,727	0,271	40,528	1	0,000	5,625

TABLE 4
VARIABLES NOT IN THE EQUATION

		Score	Mr
Variable	Ease of Process to Get Information	20,613	0,000
	Security and Safeguarding of Personal Data	14,905	0,000
	Speed of the Registration Process	36,957	0,000
	Hospitality of Registration Staff	33,715	0,000
	Clarity and Ease of Online Registration	28,409	0,000
	Ease of Providing Suggestions or Feedback	14,677	0,000
	Clarity of information provided by staff	13,590	0,000
	Response to Questions from the Website	16,245	0,000
	Ease of Making Appointments Through the Website	13,241	0,000
	Appointment Reminder Effectiveness	9,800	0,000
	Flexibility to Change or Cancel a Visit	25,425	0,000
	Attractiveness of Hospital Programs Offered	21,616	0,000
	Benefits of Hospital Health Counseling Activities	25,932	0,000
	Variety of Health Programs Offered	41,727	0,000
	Hospital Program Information	18,815	0,000
	Clarity of Hospital Rules	9,701	0,000
	Clarity of Implementation of Accepted Safety Rules	25,973	0,000
	Patient Privacy Rules During Treatment	18,559	0,000
	Speed of Direct Registration Process	19,907	0,000
	Clarity of Fee Information and Payment Methods	25,973	0,000
	Response Speed Response To Complaints or Responses	29,495	0,000
	Administrative Completion Process	39,943	0,000
Overall Statistic		77,729	0,000

1. Interpretation of Significance Results

Based on the results of statistical analysis, all variables showed a significance value (Sig.) of 0.000, which means less than 0.05. This indicates that all variables have a very significant relationship with the level of patient satisfaction in the hospital. The Overall Statistics value of 77,729 with a significance of 0.000 also strengthens that this model is very good at explaining the relationship between variables.

2. Variable Score Analysis

The results of the analysis showed that the variety of health programs offered had the most substantial influence, with a score of 41,727, followed by the administrative completion process (39,943), the speed of the registration process (36,957), the friendliness of the registration staff (33,715), and the speed of response to complaints (29,495). On the other hand, the variables with a lower but still significant influence are the clarity of information provided by staff (13,590) and the ease of making appointments through the website (13,241). These findings indicate that although all variables have a significant effect, aspects of health program variation and administrative efficiency are the dominant factors in influencing patient satisfaction, while digital service systems still need further development.

3. Customer Relationship Management (CRM) and Its Role in Enhancing Patient Engagement in Hospitals

Customer Relationship Management (CRM) enhances patient engagement in hospitals through several critical

mechanisms: (1) Personalized Communication – CRM systems facilitate the collection and analysis of patient data, enabling tailored communication. Moreover, the implementation of a communication and customer service-based CRM in hospitals involves using centralized channels (e.g., patient portals, helplines, chatbots) to streamline patient interactions, training staff in empathy and CRM tool usage, and automating appointment reminders and post-care follow-ups. The system integrates real-time patient feedback to resolve complaints, personalizes communication based on patient needs (e.g., medication reminders for chronic patients), and employs platforms like Salesforce Health Cloud that comply with data privacy regulations. By combining technology (EHR integration, AI) with a service-oriented approach, hospitals enhance patient satisfaction, reduce no-shows, and build long-term trust through transparency and responsiveness

By understanding patient preferences, medical history, and specific needs, healthcare practitioners can deliver individualized messages, appointment reminders, and follow-up care instructions, thereby fostering greater patient engagement. (2) Enhanced Information Accessibility – Many CRM platforms feature patient portals that give individuals access to their medical records, test results, and educational materials. This transparency empowers patients to take an active role in their healthcare, ultimately increasing their engagement and satisfaction. (3) Feedback Mechanisms – CRM systems enable the aggregation of patient feedback through surveys and other instruments. By proactively seeking and responding to patient input, hospitals can refine their services and demonstrate appreciation for patient contributions, thereby fostering increased engagement and loyalty. (4) Improved Care Coordination – CRM systems enhance communication among healthcare teams, ensuring that all professionals involved in a patient's care remain informed and aligned. This collaboration minimizes errors and improves the patient experience by fostering a sense of support and education throughout the healthcare journey. (5) Targeted Educational Resources – Hospitals can identify educational needs through patient data analysis and provide relevant materials tailored to different patient demographics. This targeted strategy enhances patients' understanding of symptoms and treatment options, promoting more active involvement in health management. (6) Strengthened Relationship Development – CRM systems support cultivating long-term partnerships between patients and healthcare providers. Consistent communication and follow-up interactions help hospitals build trust and rapport, leading to deeper patient engagement in their care. (7) Proactive Health Management – Hospitals can implement proactive outreach initiatives for preventive care and chronic disease management by leveraging CRM systems. Engaging patients early in their health fosters a well-being culture and encourages active participation in health maintenance. (8) Data-Driven Insights – CRM systems provide hospitals with data-driven analytics that help identify trends in patient behaviour and preferences. These insights can guide efforts to improve engagement by identifying at-risk patients who may require additional care or resources. CRM enhances patient engagement by enabling personalized communication, improving information accessibility, facilitating feedback, optimizing care coordination, delivering targeted education, strengthening relationships, encouraging proactive health management, and leveraging data-driven insights. These components collectively foster a more engaging and supportive healthcare environment, ultimately improving patient satisfaction and outcomes.

4. The Impact of Customer Relationship Management (CRM) on Patient Satisfaction in Hospitals

Customer Relationship Management (CRM) significantly influences patient satisfaction in hospitals by enhancing communication, engagement, and overall service quality through several key mechanisms: (1) Enhanced Communication – CRM systems facilitate improved interactions between healthcare providers and patients by centralizing patient information. This enables healthcare practitioners to access comprehensive patient histories, preferences, and feedback, allowing for more personalized interactions. As a result, physicians can address specific concerns and needs more effectively, fostering patient trust and satisfaction. (2) Improved Patient Engagement – CRM platforms typically incorporate functionalities that promote patient engagement, including appointment reminders, educational materials, and follow-up communications. By involving patients in their care processes and providing them with relevant information, hospitals can cultivate a sense of ownership and accountability, ultimately enhancing patient satisfaction levels. (3) Optimized Operational Processes – The implementation of CRM in hospitals streamlines administrative functions such as scheduling, billing, and patient feedback collection. By reducing wait times and administrative burdens, Hospitals can enhance the overall patient experience, making visits more efficient and less stressful. (4) Effective Feedback Mechanisms – CRM systems serve as a platform for gathering patient feedback through surveys and various assessment tools. This input can be analysed to identify areas for improvement, enabling hospitals to make data-driven decisions that enhance service quality. When patients perceive that their opinions are valued and acted upon, their satisfaction levels typically increase. (5) Personalized Care Delivery – Through data analytics, CRM systems allow healthcare providers to develop a deeper understanding of individual patient needs and preferences. This customization leads to personalized treatment plans and services, which not only improve health outcomes but also enhance patients' perception of care quality. (6) Fostering Patient Loyalty – Efficient CRM strategies promote long-term relationships between patients and healthcare providers. When patients feel valued and receive consistent, high-quality care, they are more likely to return for future services and recommend the Hospital to others, thereby strengthening

institutional reputation and patient satisfaction. CRM enhances patient satisfaction in hospitals by improving communication, fostering engagement, optimizing operations, facilitating feedback, personalizing care, and cultivating patient loyalty. These factors collectively contribute to a more positive patient experience, leading to increased satisfaction levels.

5. *Framework optimizing customer loyalty through crm approach*

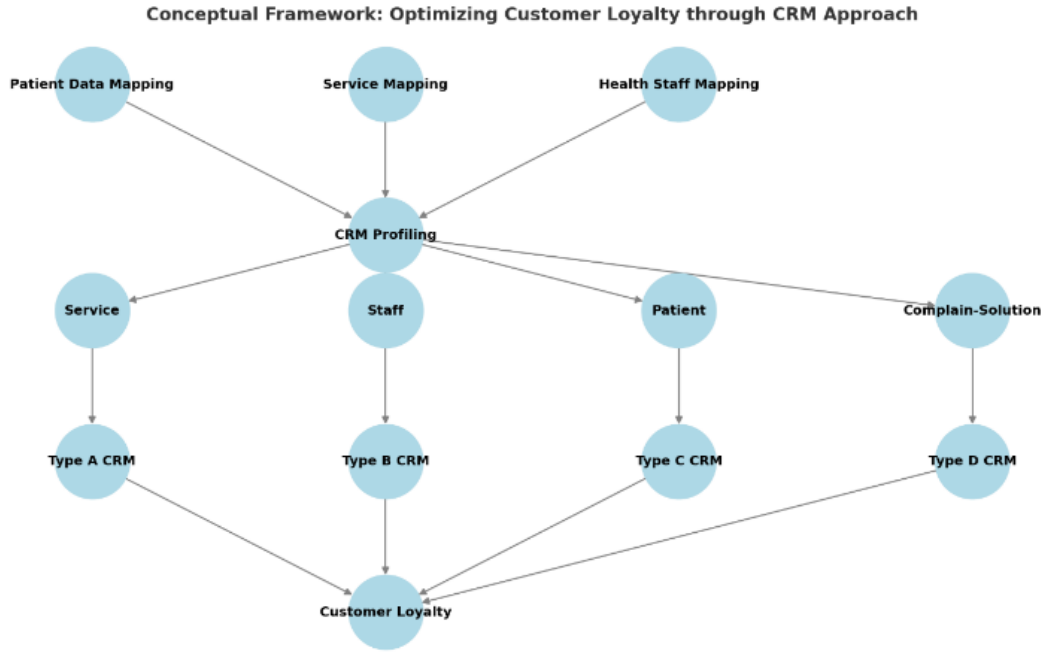

Figure 3.Framework Optimizing Customer Loyalty Through CRM Approach

1. Input Variables (Patient Data Mapping, Service Mapping, Health Staff Mapping)
   - Patient Data Mapping: Collection and analysis of patient demographics, medical history, and behavioural patterns.
   - Service Mapping: Identification of healthcare services that align with patient needs and preferences.
   - Health Staff Mapping: Evaluating staff competencies and their role in delivering personalized patient experiences.
2. CRM Profiling (Core Component)
   - CRM Profiling acts as a central component that integrates key elements:
   - Service: Enhancing healthcare service quality and availability.
   - Staff: Improving healthcare provider interaction and responsiveness.
   - Patient: Understanding patient preferences, needs, and expectations.
   - Complaint-Solution: Establishing mechanisms to collect patient feedback and resolve issues efficiently.
3. CRM Implementation (Classification)

Based on CRM Profiling, the framework categorizes CRM strategies into four types:

   - Type A CRM: Basic CRM focusing on patient record management.
   - Type B CRM: Intermediate CRM integrating service personalization.
   - Type C CRM: Advanced CRM with predictive analytics and AI-based engagement.
   - Type D CRM: Fully optimized CRM with automated patient engagement and loyalty programs.
4. Expected Outcome: Enhanced Customer Loyalty
   - Strengthened patient-provider relationships.
   - Improved patient retention and satisfaction.
   - Higher efficiency in healthcare service delivery.

IV. CONCLUSION

Based on this study, *Customer Relationship Management* (CRM) is an effective strategy to increase patient loyalty in hospitals. CRM helps hospitals understand patient needs, improve service quality, and build long-term relationships. The results showed that patients were generally satisfied with the Hospital's services, especially in terms of clarity of safety rules, patient privacy, and cost information. However, some aspects, such as the doctor's wait time, the speed of the registration process, and the interaction with staff, still need improvement. Variables such as the variation of health programs and administrative efficiency have a dominant influence on patient satisfaction, while digital services, such

as the ease of making appointments through the website, still need to be improved. Thus, CRM can be an essential pillar in increasing patient loyalty as long as it is well-implemented and supported by competent human resources.

The CRM framework proposed in this study offers a structured solution to overcome implementation challenges through three main pillars: patient data mapping, service mapping, and health staff mapping. The classification of CRM into four types (A-D) allows hospitals to choose strategies according to their infrastructure capacity, ranging from essential data management to AI-based automated systems that integrate complaint-solution mechanisms. The results show that this framework is effective in reducing the problem of doctor waiting time and registration speed by prioritizing service personalization and administrative process efficiency. The synergy between digital technologies (e.g., online booking) and quality human interaction within this framework not only strengthens patient loyalty but also addresses the limitations of identified digital services. As such, this framework becomes the foundation for an adaptive CRM transformation, focusing on balancing technical innovation and humane service quality.

V. RECOMMENDATION

To improve the effectiveness of CRM, hospitals need to update their CRM systems, especially when it comes to integrated and centralized management of patient data. This will make it easier for medical staff to access patient information quickly and accurately, so that services can be more personalized and timely. In addition, communication training for healthcare staff, including doctors, nurses, and administrative staff, is indispensable to improve their ability to understand patient needs and provide clear explanations.

Hospitals must also develop digital services such as mobile applications and websites to make it easier for patients to book appointments, access health information, and communicate with staff. Automated reminders and quick response systems can reduce absenteeism rates and improve patient satisfaction. Finally, increasing the variety of health programs and the efficiency of the administrative process will have a significant positive impact on patient satisfaction. By implementing these recommendations, hospitals can improve patient loyalty and overall service quality.

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