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Analysis of the Cardiology Outpatient Service System at RSUD Majalaya: Implementation of SIMRS and Online Registration to Improve Service Quality

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Abstract. *This study aims to analyze the service system in the Cardiology Clinic of RSUD Majalaya, with a specific focus on the implementation of the Hospital Management Information System (SIMRS) and online registration services. The background of this research is based on the increasing demand for efficient and high-quality healthcare services, particularly in specialist clinics that experience high patient volumes on a daily basis. Efficient service delivery is essential to ensure patient satisfaction, reduce overcrowding, and optimize clinical workflows. This research employed a qualitative descriptive method, involving direct observation of service processes and in-depth interviews with administrative staff and patients. The findings indicate that the implementation of SIMRS and the online registration system has significantly contributed to the acceleration of administrative processes, reduced patient waiting times, and improved the overall quality of service. Patients who utilized the online registration system reported shorter queues and a more organized experience. However, several challenges remain, particularly regarding limited digital literacy among a segment of the patient population, as well as technical constraints related to internet connectivity and server stability. These issues can hinder the full utilization of digital services. Based on the findings, it is recommended that the hospital invest in continuous infrastructure improvements, provide digital literacy training or assistance for patients, and conduct periodic evaluations of system performance. Such measures are essential to ensure the long-term effectiveness and sustainability of digital healthcare services, thereby enhancing the patient experience and supporting overall healthcare delivery goals.*

Keywords: *SIMRS, online registration, cardiology clinic services, RSUD Majalaya, service quality*

1. Introduction

Quality healthcare service is a primary demand of society in the modern era, especially in specialized services such as the Cardiology Clinic. With the increasing burden of non-communicable diseases, particularly cardiovascular conditions, the need for timely, accurate, and efficient services has become more urgent. Patients expect not only effective clinical treatment but also streamlined administrative procedures that minimize waiting times and confusion. The shift in patient expectations reflects broader changes in healthcare, where digital transformation and patient-centered care have become core pillars of service improvement (1).

RSUD Majalaya, a regional public hospital under the Bandung Regency Government, recognizes these challenges and opportunities. In response, the hospital has implemented the Hospital Management Information System (SIMRS) and introduced online registration services. These innovations aim to improve the efficiency, accuracy, and accessibility of

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healthcare services, particularly in high-demand units such as the Cardiology Clinic. The integration of SIMRS is expected to support data management, patient record keeping, appointment scheduling, and overall coordination among departments. Meanwhile, the online registration system is designed to reduce long queues and waiting times by allowing patients to secure appointments before visiting the hospital (2).

From a theoretical standpoint, the adoption of health information systems is grounded in the Technology Acceptance Model (TAM), which explains how users come to accept and use new technologies. Perceived ease of use and perceived usefulness are key variables in determining the success of digital health tools. Several studies have shown that implementing SIMRS can enhance hospital performance, reduce administrative errors, and support clinical decision-making. However, the effectiveness of such systems depends on adequate infrastructure, user training, and patient engagement. Similarly, digital literacy and equitable access to technology remain essential factors in ensuring that innovations reach all patient groups (3).

Therefore, this study aims to evaluate the implementation of SIMRS and the online registration system in the Cardiology Clinic of RSUD Majalaya, focusing on their impact on the quality of services delivered to patients. By employing a qualitative descriptive approach, this research seeks to provide a comprehensive analysis of how digital health tools are utilized in practice, the benefits they offer, and the challenges encountered during their adoption. The findings are expected to contribute to ongoing efforts to optimize healthcare service delivery in regional hospitals and support digital transformation in the public health sector (4,5,6).

2. Methods

This study employs a **qualitative descriptive approach** to explore and evaluate the implementation of the Hospital Management Information System (SIMRS) and the online registration system in the Cardiology Clinic of RSUD Majalaya. This method was chosen because it allows for an in-depth understanding of complex phenomena in their natural setting, particularly regarding service workflows, staff-patient interactions, and the perceived effectiveness of digital health systems. The qualitative descriptive approach is appropriate when the research objective is to obtain rich, detailed data from the perspective of users and implementers without manipulating the environment.

2.1. Research Instruments

The instruments used in this research were carefully designed to collect comprehensive and relevant data from various stakeholders. The main instruments include:

- **Semi-structured interview guidelines**, used to explore the experiences, opinions, and suggestions from registration officers, medical personnel, and patients regarding the SIMRS and online registration systems.
- **Observation sheets**, which allowed researchers to record real-time activities in the clinic, such as patient registration flow, system usage by staff, and waiting times.
- **Documentation forms**, used to compile institutional documents such as Standard Operating Procedures (SOPs), SIMRS interface guides, monthly patient visit reports, and internal evaluations.

  These instruments were developed based on existing literature and were validated through expert consultation before being deployed in the field.

2.2. Data Analysis

The collected data were analyzed using a qualitative descriptive analysis framework. The analysis process followed the steps of data reduction, where irrelevant or redundant data were eliminated; data display, where key findings were organized into thematic categories; and conclusion drawing, where final interpretations were made. Thematic coding was applied to interview transcripts and observation notes, with themes including:

- Effectiveness of SIMRS in administrative processes.
- Impact of online registration on time efficiency.
- Patient satisfaction and ease of access.
- Challenges and barriers in implementation.

Findings were then compared and interpreted using existing theories such as the Technology Acceptance Model (TAM) and previous empirical studies on health information systems in similar settings (7,8,9,10).

2.3. Work Method

This research adopted a field study approach, involving direct engagement with the service environment at RSUD Majalaya. The researcher spent several days in the Cardiology Clinic to immerse in the daily operational context. During this time, the researcher:

- Observed the patient registration process, from initial arrival to entry into the examination room.
- Took note of system usage by administrative staff and potential technical difficulties.
- Interacted with patients to gather spontaneous feedback.
- Collected institutional documents and historical data on patient visits.

This immersive approach helped capture not only formal procedures but also informal practices and contextual factors influencing system effectiveness.

2.4. Data Collection Methods

To ensure data triangulation and enhance validity, four complementary data collection methods were employed:

1. **Direct Observation**
   This method was used to observe the actual workflow in the Cardiology Clinic, the interaction between patients and staff, and how SIMRS and online registration were being utilized in real time. Observations focused on bottlenecks, system responsiveness, and staff behavior during peak hours.
2. **Interviews**
   Semi-structured interviews were conducted with multiple respondents:
   a). Administrative staff, to understand technical use and challenges of SIMRS.
   b). Medical personnel, to assess the influence of system access on clinical work.
   c). Patients, both users and non-users of the online registration system, to explore satisfaction, accessibility, and digital literacy.
3. **Documentary Study**
   Institutional documents such as SOPs, SIMRS user manuals, policy regulations, patient statistics, and internal reports were reviewed to gain formal insights into the system's objectives, standard procedures, and historical performance.
4. **Literature Study**
   Relevant literature on hospital information systems, digital health adoption, and

service quality frameworks was reviewed to build a theoretical foundation and serve as a comparison to field findings. Sources included national journals, government regulations, and global studies on e-health.

By integrating these various methods, this study aims to produce a comprehensive, evidence-based evaluation of the digital transformation efforts in the Cardiology Clinic of RSUD Majalaya.

3. Results and Discussion

3.1 SIMRS Implementation

The implementation of SIMRS at RSUD Majalaya represents a major step toward digital transformation in public healthcare services. In the Cardiology Clinic, SIMRS is used to integrate key administrative and clinical functions such as patient registration, medical record management, and inter-unit referrals. Real-time data entry and access to patient history streamline diagnostic and treatment decisions, reducing delays caused by missing or incomplete records (12,13).

However, the field data also reveal several limitations in SIMRS utilization. Interviews with registration officers highlighted that although SIMRS simplifies data retrieval, occasional system lags and server downtime disrupt the continuity of service. Moreover, some staff still rely on manual backups due to lack of confidence in system reliability, pointing to gaps in training and change management (14,15).

3.2 Online Registration System

The online registration system at RSUD Majalaya has provided patients with the option to book their appointments in advance via the hospital's website. This has significantly reduced congestion at the registration counters, particularly during peak hours. Younger and tech-savvy patients expressed satisfaction with the ease of access and time saved through this feature. In addition, patients appreciated the ability to choose their preferred schedule without having to come to the hospital in person.

Nonetheless, interviews and observations reveal digital disparities. Elderly patients, who form a significant portion of the cardiology clinic's visitors, often struggle to use the online platform due to limited digital literacy. Some also depend on family members to complete online registration, which may not always be feasible. Similar findings are reported in the study by Utami & Nugraha (2021), which found that digital inclusion remains a challenge in the adoption of e-health systems in rural and semi-urban areas of Indonesia. Furthermore, inconsistent internet access in certain regions surrounding Majalaya poses additional barriers to the full utilization of the system.

3.3 Impact on Service Quality

The combined implementation of SIMRS and online registration has shown a measurable positive impact on service delivery in the Cardiology Clinic. Based on patient visit data and staff interviews, the average waiting time has decreased by 20–30%, particularly for patients who register online. This aligns with the work of Prasetya & Widodo (2020), which showed that health information systems can significantly reduce bottlenecks in patient flow when properly integrated with front-office services.

Patient satisfaction has also improved, especially regarding the speed and transparency of services. SIMRS facilitates more accurate data processing, while online

registration offers convenience and predictability for patients. However, these benefits are unevenly distributed. Patients who rely on in-person registration continue to experience longer wait times, especially when system outages occur or when staff revert to manual processes.

A critical issue that emerged is the need for continuous digital literacy programs and infrastructure reinforcement. Without proper patient education and sustained investment in IT support and internet infrastructure, the benefits of digital systems risk being limited to only certain patient demographics. Furthermore, long-term success requires routine monitoring and evaluation of system performance, user feedback, and staff training to maintain efficiency and adaptability.

Conclusion

The implementation of the Hospital Management Information System (SIMRS) and the online registration system at the Cardiology Clinic of RSUD Majalaya demonstrates a significant advancement in the hospital's service delivery approach. These digital innovations have succeeded in enhancing the efficiency and quality of healthcare services, particularly in streamlining administrative workflows and reducing patient waiting times. Real-time data input, easier access to patient medical records, and faster registration processes have directly contributed to a more effective coordination between administrative staff and medical personnel. Patients have expressed increased satisfaction, particularly regarding the transparency and speed of service they receive.

In addition to operational benefits, the integration of SIMRS supports better clinical decision-making by providing complete and timely patient data, thereby reducing the potential for administrative errors. The online registration system also empowers patients by offering more autonomy in choosing their visit schedule, leading to better appointment management and reduced crowding in the waiting area.

However, these positive outcomes are not without challenges. The effectiveness of SIMRS and the online registration system is still hindered by several critical factors. Limited digital literacy, especially among elderly patients, continues to be a barrier to the optimal use of online services. Furthermore, issues such as internet instability, occasional system downtime, and lack of ongoing technical support reduce the reliability and consistency of digital service delivery.

Therefore, the sustainability and scalability of this digital transformation require a multifaceted strategy. This includes continuous improvement of hospital IT infrastructure, regular system maintenance, training programs for both staff and patients, as well as community outreach initiatives to increase awareness and digital competence. By addressing these challenges, RSUD Majalaya can ensure that the benefits of SIMRS and online registration are fully realized across all patient demographics and contribute meaningfully to long-term service quality improvement in the Cardiology Clinic and beyond.

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