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Analysis of the Implementation of the Electronic Medical Record (EMR) System at Kasih Ibu Hospital Surakarta

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ABSTRAK

Pemanfaatan teknologi dalam layanan kesehatan merupakan bagian penting dari transformasi digital modern. Meskipun terdapat kemajuan, banyak fasilitas kesehatan masih menghadapi tantangan dalam mengadopsi sistem digital. Penelitian sebelumnya menunjukkan bahwa kesulitan-kesulitan ini dapat memengaruhi kualitas layanan secara signifikan. Rumah Sakit Kasih Ibu Surakarta, yang telah mengadopsi Rekam Medis Elektronik (RME), juga menghadapi kendala selama proses implementasi. Penelitian ini bertujuan untuk mengevaluasi secara menyeluruh bagaimana RME diterapkan di rumah sakit dan mengidentifikasi faktor-faktor yang mendukung penerapannya. Berbeda dengan penelitian sebelumnya yang hanya mengkaji aspek-aspek terbatas, penelitian ini menawarkan perspektif yang lebih luas. Dengan menggunakan metode studi kasus kualitatif, data dikumpulkan melalui kuesioner yang diberikan kepada partisipan terpilih dengan latar belakang pendidikan dan keahlian yang relevan (purposive sampling). Data dianalisis menggunakan Diagram Ishikawa untuk mengidentifikasi enam area permasalahan utama: sumber daya manusia, material, aset, metode, kebijakan, dan lingkungan. Temuan ini menyoroti pentingnya pemantauan dan evaluasi berkelanjutan terhadap elemen-elemen ini untuk meningkatkan adopsi RME di rumah sakit. Pada akhirnya, penelitian ini berharap dapat mengungkap hambatan utama implementasi RME dan membantu para pimpinan rumah sakit dalam mengembangkan strategi perbaikan yang lebih efektif.

ABSTRACT

The use of technology in healthcare services is a key part of modern digital transformation. Despite this progress, many healthcare facilities continue to experience challenges when adopting digital systems. Previous research indicates that these difficulties can significantly affect service quality. Kasih Ibu Hospital Surakarta, which has adopted Electronic Medical Records (EMR), also faces obstacles during the implementation process. This study aims to thoroughly evaluate how EMR is applied at the hospital and identify the factors supporting its adoption. Unlike earlier studies that examined only limited aspects, this research offers a broader perspective. Using a qualitative case study method, data was gathered through questionnaires given to selected participants with relevant education and expertise (purposive sampling). The data was analyzed using the Ishikawa Diagram to pinpoint six major problem areas: human resources, materials, assets, methods, policies, and environment. The findings highlight the importance of continuous monitoring and evaluation of these elements to enhance EMR adoption at the hospital. Ultimately, this study hopes to uncover the main barriers

to EMR implementation and assist hospital leaders in developing more effective improvement strategies.

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1. INTRODUCTION

The Covid-19 pandemic required Indonesia's healthcare sector to rapidly adjust and remain flexible in responding to health challenges and ensuring adequate services across healthcare facilities. This situation emphasized the essential role of technology and the need to enhance service efficiency. As a result, technology has become increasingly important, leading to the development of innovations like the adoption of electronic medical record (EMR) systems.

The use of this technology has shown clear benefits, especially by making it easier for stakeholders to access healthcare services during periods of isolation and reducing the potential spread of Covid-19. In response to this need, Indonesia's Ministry of Health initiated various national healthcare reform programs, including efforts focused on digital transformation in the medical sector[1].

Digital transformation in healthcare represents the modernization of the medical sector, intended to enhance service efficiency, ensure equitable healthcare access, and improve patient care quality. This initiative is reinforced by government regulations, particularly the 2024 Health Digitalization Strategy outlined in Ministry of Health Regulation No. 21 of 2020[1].

Key initiatives in digital health transformation involve unifying health data systems, strengthening the skills of healthcare professionals in health informatics, and creating integrated digital platforms for healthcare services. These efforts aim to improve service efficiency and quality throughout healthcare facilities[1].

Statistics indicate that nearly 47% of healthcare executives have allocated resources toward digital health record systems, whereas about 44% are focusing on improving clinical operational efficiency[2]. However, despite the progress made, the digital transformation efforts have continued to encounter obstacles since 2020, preventing the full realization of the implementation goals set for 2024. Common challenges include concerns over data security, incomplete and inconsistent documentation, and limited accuracy in health data. These issues significantly contribute to reduced service quality across many healthcare facilities[1], thus, these challenges must be addressed with careful focus and appropriate action.

Earlier research, which primarily examined technological components and digital performance indicators[3], along with existing literature reviews[4] has not yet presented a complete understanding of digital health transformation practices. To address this gap, this study conducts a more in-depth evaluation, focusing on six essential dimensions in EMR implementation: workforce, assets, materials, procedures, regulations, and external or environmental influences.

The purpose of this research is to explore the implementation of the Electronic Medical Record (EMR) system at Kasih Ibu Hospital Surakarta, a newly established private hospital in the city of Bengawan that began operations in 2022 during the digital transformation era. From the start, the

hospital has integrated digital systems into its services and is dedicated to minimizing paper-based processes.

Furthermore, this research seeks to assess the user-related challenges encountered by the hospital in adopting the electronic medical record system, with the goal of identifying effective strategies to enhance its performance and implementation success. To accomplish this, a comprehensive analysis based on the Ishikawa diagram is applied, examining six fundamental resource components that influence digitalization within healthcare services[5].

2. METHOD

This research adopts a quantitative method combined with a case study approach. The quantitative design was chosen to obtain an in-depth understanding and a detailed picture of the situations and experiences of the study participants[2]. At the same time, the case study approach allows for a thorough investigation of the challenges encountered during the implementation process at the research location. The required detailed information was gathered by administering questionnaires to selected respondents. The questionnaire was administered to participants chosen using purposive sampling, a technique in which respondents are selected based on predetermined criteria relevant to the research goals. The study's informants included representatives from hospital management, clinical and medical support units, the information technology department, and patients along with their family members. This approach ensures that data is gathered from individuals who are actively engaged in and accountable for the digitalization process at Kasih Ibu Hospital Surakarta.

This study employed a questionnaire as the research instrument, consisting of multiple-choice items evaluated using a Likert scale. The scale serves to measure respondents' attitudes, opinions, and perceptions regarding specific phenomena[6]. Each question in the instrument carries a designated weight based on the scoring guidelines provided in the table1.

Tabel 1.1 Likert Measurement Scale Used in the Study

Jawaban	Kode	Score
Poor	A	1
Below Average	B	2
Adequate	C	3
Good	D	4
Excellent	E	5

In this research, the Likert scale was applied to transform qualitative responses into quantitative data, making the analysis more efficient. After the questionnaires were completed, the responses were tabulated and processed for further evaluation.

The questionnaire was designed around six key dimensions based on the Ishikawa (fishbone) framework, covering human resources, materials, methods, equipment/assets, policies, and environmental factors. To complement the questionnaire findings, document analysis was also conducted as part of methodological triangulation. Relevant secondary records were reviewed to validate and strengthen the information gathered from the respondents.

3. RESULT AND DISCUSSION

Kasih Ibu Hospital Surakarta is a type B private hospital that has been in operation since 1982 and started adopting digital healthcare services in 2016. Located in the heart of Surakarta, Central Java, the hospital offers various specialist services—such as internal medicine, surgery, and dental care—and maintains a consistent inpatient bed occupancy rate. The hospital has achieved full accreditation,

highlighting the importance of continuously improving service quality to comply with government standards and support the national digital health transformation initiatives.

Despite ongoing digital initiatives, the hospital has not yet fully achieved the goals outlined in the 2024 Health Digitalization Strategy mandated by the Ministry of Health Regulation No. 21 of 2020[1]. One of the key initiatives undertaken by the hospital is the implementation of the Electronic Medical Record (EMR) system, which was introduced in 2022. However, the system currently in use has not fully met government requirements, particularly regarding integration with the Satu Sehat platform..

To assess the hospital's digital transformation progress, the researcher examined various challenges using the Ishikawa (Fishbone) Diagram. This tool helps determine the root causes of issues by mapping out cause-and-effect factors that impact system performance. It is particularly useful for analyzing complex problems and identifying effective solutions during program implementation[5]. The main digitalization challenges identified at Kasih Ibu Hospital Surakarta are illustrated in the following diagram.

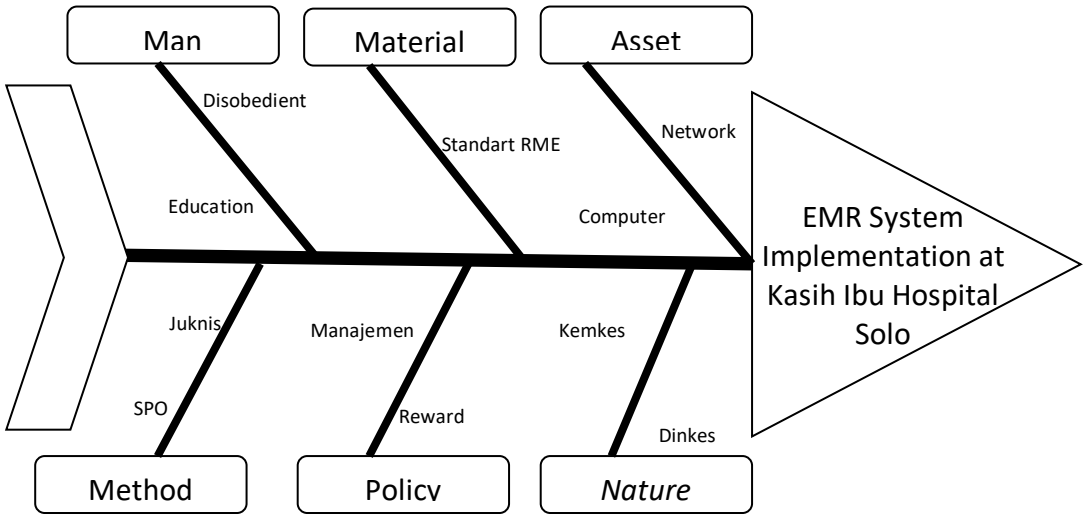

Figure 1. Diagram Ishikawa Tranformasi Digital RS Kasih Ibu Surakarta

3.1 Man

Information gathered from respondents indicates that a portion of the healthcare workforce at Kasih Ibu Hospital Surakarta has not fully adhered to established procedures regarding the use of digital systems. Instances were found where patient data in the Electronic Medical Record (EMR) system was incomplete, paper-based documentation was still preferred over digital input, and data entry mistakes resulted in inaccurate or failed uploads. These issues reflect limited understanding and proficiency among staff in operating the digital systems and technologies adopted by the hospital.

Interestingly, the majority of the workforce—aged 20 to 45 years out of a total of 720 employees as of September 2025—belongs to a demographic generally considered technologically adaptable and productive[7]. One of the key contributing factors to this challenge is low motivation to embrace digital systems. Motivation has been shown to play a critical role in shaping individual readiness for technological adoption in workplace environments[3].

In addition, limited computer literacy and insufficient system knowledge further hinder the effective implementation of EMR[8]. This condition highlights the need to enhance staff competency, attitudes, and digital literacy to support optimal technology utilization[9].

Previous studies also indicate that perceptions of increased workload associated with digitalization may impede technology adoption, even when training has already been provided[10].

Therefore, the human resource component remains a critical determinant in the success of digital transformation in healthcare settings and requires comprehensive development strategies.

Material

The component of tools and materials in this study includes all physical and non-physical resources that support the implementation of digital transformation[5]. The findings reveal that the availability of technological infrastructure remains limited, and there is no dedicated budget allocation for digitalization programs at Kasih Ibu Hospital Surakarta. Currently, the hospital has approximately 2,000 EMR forms in accordance with accreditation standards to support its health information system. Furthermore, the hospital has yet to procure facilities such as electronic signature devices or implement an EMR system integrated with the national platform due to financial constraints. As the hospital recently underwent a one-year building renovation, the majority of funds remain prioritized for service development and basic infrastructure.

Similar challenges have been reported in other countries, such as Ethiopia, where limited computer devices and internet connectivity hinder the adoption of EMR systems[8]. Previous studies also indicate that the readiness level of healthcare workers to adopt EMR systems is approximately 52.8%, influenced by limited infrastructure and digital literacy barriers. However, other research suggests that effective EMR utilization can enhance workforce performance and encourage engagement despite requiring additional investment[11]. Therefore, the availability of technology and sufficient funding are interdependent elements that play a crucial role in the successful execution of healthcare digitalization initiatives.

3.2 Asset

The asset component in the Ishikawa diagram refers to the equipment and infrastructure used to support the digitalization process in healthcare services[5]. The analysis indicates that Kasih Ibu Hospital Surakarta has a fairly adequate number of EMR-supporting facilities, with approximately 500 computer units available to operate the Hospital Information Management System (SIMRS). However, this number is still insufficient relative to the total workforce, resulting in usage queues and delays in service delivery.

This shortage of supporting infrastructure is further influenced by system performance that does not fully meet user needs. Similar challenges were reported in hospitals in Ethiopia, where limited equipment availability, system complexity, and low system reliability hindered digital system implementation[8].

Previous studies emphasize that factors such as system usability, design quality, and technological reliability significantly affect user acceptance. A mismatch between system capabilities and user needs may slow down workflows and reduce the effectiveness of digital system implementation[12].

3.3 Method

The method component in this context refers to the processes and procedures implemented during the hospital's digitalization program[5]. Findings indicate that the workflow for EMR implementation at Kasih Ibu Hospital Surakarta is not yet fully structured. For example, the system does not enforce mandatory completion of patient data fields (SOAP), allowing healthcare staff to leave records incomplete. Additionally, EMR training has only been conducted twice since the system was introduced. The readiness of healthcare personnel to adopt digital systems is strongly influenced by their skills, awareness, attitudes, and knowledge [9]. The limited capacity observed highlights the need for continuous training programs and follow-up evaluations by hospital management. Inconsistent physician schedules and weak internal regulations related to EMR documentation also demonstrate insufficient managerial support and supervision. Therefore, active managerial involvement and clear

accountability mechanisms are critical to ensuring the successful implementation of digital transformation initiatives[13].

3.4 Policy

In the Ishikawa framework, policy serves as a mechanism to drive program performance and development [5]. In this study, policy assessment refers to the monitoring process of EMR implementation at Kasih Ibu Hospital Surakarta. Such monitoring is intended to evaluate program effectiveness and determine strategies to enhance implementation success[14].

However, the findings reveal that the hospital has not yet established a measurable evaluation system for its EMR program. The initiative is being executed without clear assessment indicators, making it difficult to determine its effectiveness. This condition reflects weak managerial oversight and a lack of follow-up mechanisms related to program execution. These findings align with research in Ethiopia, which indicated that limited managerial support and accountability significantly hinder the adoption of health information technology, with support levels reported at only 50.4%[9].

3.5 Mother nature

Environmental factors encompass external conditions that influence the success of program implementation, including government policies, organizational culture, and socio-economic factors[5]. Based on the questionnaire results, external conditions were found to significantly affect the motivation and attitudes of healthcare personnel in adapting to digital health services at Kasih Ibu Hospital Surakarta.

These findings are consistent with research conducted in Italy, which concluded that the success of digital transformation is shaped not only by internal aspects but also by the broader external context, such as community culture and socio-economic conditions surrounding the healthcare institution. The level of local income and economic development influences healthcare demand patterns, which in turn affect organizational strategies and overall performance in healthcare service delivery[15].

3.6 Research Implementation

This study involved 100 employees of Kasih Ibu Hospital Surakarta as respondents. They received a questionnaire through a barcode-linked Google Form consisting of 25 questions based on the Digital Maturity Index developed by the Indonesian Ministry of Health[16] and the KARS Accreditation Survey Instrument [17] The questionnaire used a 5-point Likert scale (score 1 to 5) with response options adjusted to the respondents' work units and educational backgrounds. The Likert-scale data were then tabulated to calculate the percentage contribution of respondents, enabling the assessment of the success level of the Electronic Medical Record (EMR) implementation at Kasih Ibu Hospital Surakarta.

Tabel 2.1 Human Resources (Man) Category Questions

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
1	Do you understand the main benefits of implementing EMR for patient care?	0%	2%	6%	51%	41%	100
2	How well do you understand the differences between manual and electronic medical records?	0%	1%	7%	51%	41%	100
3	How confident are you in operating a computer or laptop?	0%	0%	8%	51%	41%	100

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
4	Are you able to adapt to new computer-based applications?	0%	0%	8%	51%	41%	100
5	What is your attitude toward the implementation of EMR in your workplace?	0%	2%	6%	51%	41%	100
6	Do you believe that EMR will make your work easier?	0%	0%	8%	51%	41%	100
7	Are you concerned that EMR will increase your workload?	0%	1%	7%	51%	41%	100
8	Do you believe that EMR can improve the quality of patient care?	0%	0%	8%	51%	41%	100
9	Does leadership provide full support for EMR implementation?	0%	2%	6%	52%	40%	100
10	Is EMR training provided at your workplace?	1%	0%	7%	51%	41%	100
11	How would you rate the quality of EMR training you have attended?	0%	0%	8%	51%	41%	100
12	Is technical or IT support available when issues occur in the EMR system?	0%	0%	8%	51%	41%	100
13	How effective is internal communication regarding EMR implementation?	0%	1%	7%	51%	41%	100
14	Do you believe that switching to EMR will improve organizational performance?	0%	1%	7%	51%	41%	100
15	Do you believe EMR will speed up patient data entry?	0%	0%	8%	51%	41%	100
16	Do you think EMR reduces the risk of losing patient data?	0%	0%	8%	51%	41%	100
17	How confident are you that EMR facilitates medical auditing?	0%	0%	8%	51%	41%	100
18	Does EMR improve coordination among healthcare professionals?	0%	0%	8%	51%	41%	100
19	How important do you consider human resource involvement in EMR implementation?	1%	1%	6%	51%	41%	100
20	Do limited computer skills hinder your ability to use EMR?	0%	1%	7%	51%	41%	100
21	How important is patient data confidentiality in EMR systems?	0%	1%	7%	51%	41%	100
22	How often do you consider security aspects when using workplace computers?	0%	0%	8%	51%	41%	100
23	How satisfied are you with management support for EMR implementation?	0%	1%	7%	51%	41%	100

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
24	How hopeful are you that EMR will continue to improve in the future?	1%	1%	6%	51%	41%	100
25	If EMR system improvements are introduced, would you be willing to participate in testing?	0%	1%	7%	51%	41%	100
	Average	**0%**	**1%**	**7%**	**51%**	**41%**	

Tabel 2.2 Material Category Questions

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
1	How well do you understand the basic concepts of the Electronic Medical Record (EMR)?	0%	1%	7%	51%	41%	100
2	Are you aware of the benefits of using EMR compared to manual medical records?	0%	1%	7%	51%	41%	100
3	Was the EMR training material you received easy to understand?	0%	0%	8%	51%	41%	100
4	Was the training content practical and applicable to daily work?	0%	1%	7%	51%	41%	100
5	Do you feel the need for additional EMR training?	0%	0%	8%	51%	41%	100
6	Do you have access to training materials after the training sessions are completed?	1%	1%	6%	51%	41%	100
7	Was the training environment comfortable and supportive for learning?	0%	1%	7%	51%	41%	100
8	Does management provide adequate EMR training materials?	0%	2%	6%	51%	41%	100
9	Does management encourage staff to participate in EMR training programs?	0%	0%	8%	51%	41%	100
10	Is the training content aligned with the EMR system currently used?	0%	0%	8%	51%	41%	100
11	Is the training material up-to-date?	0%	1%	7%	51%	41%	100
12	Does the training cover patient data security protocols?	1%	1%	6%	51%	41%	100
13	Were the trainers/lecturers competent in delivering EMR material?	0%	1%	7%	51%	41%	100
14	Did the training make you feel more prepared to use the EMR system?	0%	0%	8%	51%	41%	100
15	Do you face difficulties when applying the training material in practice?	0%	1%	7%	51%	41%	100
16	Was the training duration sufficient to understand the content?	0%	3%	5%	51%	41%	100

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
17	Is there a written module that you can refer back to?	0%	0%	8%	51%	41%	100
18	Do you feel the training was too theoretical?	0%	0%	8%	51%	41%	100
19	Do you feel the EMR training sessions were too short?	0%	0%	8%	51%	41%	100
20	Are you involved in EMR discussion groups or communities?	1%	0%	7%	51%	41%	100
21	Is the EMR material updated regularly?	0%	0%	8%	52%	40%	100
22	Is online learning (e-learning) available for EMR training?	0%	1%	7%	51%	41%	100
23	Is the training content tailored to your professional role or position?	0%	0%	8%	51%	41%	100
24	Does the training include real case studies from the workplace?	0%	1%	7%	51%	41%	100
25	Did the training material help you better understand the role and importance of EMR?	0%	0%	8%	51%	41%	100
	Average	**0%**	**1%**	**7%**	**51%**	**41%**	

Tabel 2.3 Asset Category Questions

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
1	Is the number of computers in your unit sufficient to support EMR usage?	0%	0%	8%	51%	41%	100
2	How adequate are the computer specifications for running the EMR system?	0%	1%	7%	51%	41%	100
3	Are UPS devices available to protect equipment during power outages?	0%	0%	8%	51%	41%	100
4	Are supporting devices such as printers and scanners available for EMR needs?	1%	1%	6%	51%	41%	100
5	What is the physical condition of hardware devices (PCs, cables, routers, etc.)?	1%	0%	7%	52%	40%	100
6	How often does the hardware experience technical issues?	0%	0%	8%	52%	40%	100
7	Is the EMR software user-friendly for healthcare staff?	0%	1%	7%	52%	40%	100
8	Is the EMR software integrated with other systems (billing, insurance, laboratory)?	0%	1%	7%	52%	40%	100
9	Does the software frequently experience errors or crashes?	0%	1%	7%	51%	41%	100
10	Does the software comply with Ministry of Health standards for medical record documentation?	1%	0%	7%	51%	41%	100
11	Does the EMR system support real-time data entry and access?	0%	0%	8%	52%	40%	100

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
12	Are cybersecurity systems (firewall, antivirus) in place?	1%	3%	4%	52%	40%	100
13	Is data backed up regularly?	0%	0%	8%	51%	41%	100
14	Is access to EMR data restricted based on user authority?	1%	1%	6%	51%	41%	100
15	Is a user activity log system available and functioning?	0%	0%	8%	51%	41%	100
16	Does the system use strong authentication methods (passwords, OTP, etc.)?	0%	1%	7%	52%	40%	100
17	Is the hardware stored securely and protected from unauthorized access?	0%	1%	7%	52%	40%	100
18	How reliable is the EMR system against disruptions (downtime, data loss)?	0%	1%	7%	52%	40%	100
19	Is there IT staff available on-site?	0%	2%	6%	52%	40%	100
20	Are the IT staff capable of handling equipment issues?	1%	2%	5%	52%	40%	100
21	How quickly can hardware issues be resolved?	0%	1%	7%	52%	40%	100
22	Are the available devices adequate to support EMR implementation?	0%	0%	8%	51%	41%	100
23	Does the EMR system operate smoothly during peak service hours?	0%	0%	8%	52%	40%	100
24	Does management support procurement of EMR equipment?	0%	1%	7%	52%	40%	100
25	Is there a specific budget allocated for maintaining EMR equipment?	1%	0%	7%	51%	41%	100
	Average	**0%**	**1%**	**7%**	**52%**	**40%**	

Tabel 2.4 Method Category Questions

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
1	How clearly was the EMR implementation plan explained to you?	0%	0%	8%	51%	41%	100
2	Does the EMR implementation strategy align with the needs of your work unit?	0%	0%	8%	51%	41%	100
3	Was the implementation process carried out in stages?	0%	0%	8%	51%	41%	100
4	How actively was management involved in the implementation process?	0%	0%	8%	51%	41%	100
5	Did the methods used help facilitate the transition from manual records to EMR?	0%	0%	8%	51%	41%	100

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
6	Was training conducted at the appropriate time before the system went live?	0%	2%	6%	51%	41%	100
7	How easy is it to access technical support when problems arise?	0%	1%	7%	51%	41%	100
8	Is the IT team responsive to issues during implementation?	0%	0%	8%	51%	41%	100
9	Do you understand the procedure for reporting technical problems?	0%	0%	8%	51%	41%	100
10	To what extent does user participation contribute to the success of implementation?	0%	0%	8%	51%	41%	100
11	How much has EMR improved your work efficiency?	0%	2%	6%	51%	41%	100
12	Does EMR speed up patient documentation processes?	0%	0%	8%	51%	41%	100
13	Does EMR improve the accuracy of medical records?	0%	1%	7%	51%	41%	100
14	Are regular evaluations conducted regarding EMR implementation?	0%	0%	8%	51%	41%	100
15	How quickly are issues addressed once identified?	1%	0%	7%	51%	41%	100
16	Is user feedback taken seriously during evaluation?	0%	2%	6%	51%	41%	100
17	How effective is communication between units during implementation?	0%	0%	8%	51%	41%	100
18	Is information about implementation stages communicated clearly?	1%	1%	6%	51%	41%	100
19	How often does miscommunication occur during the implementation?	0%	1%	7%	51%	41%	100
20	Does the implementation team actively provide updates on progress?	0%	0%	8%	51%	41%	100
21	Do you know whom to contact if you face issues during implementation?	0%	0%	8%	51%	41%	100
22	Has the EMR implementation encouraged a shift toward a digital work culture?	0%	0%	8%	51%	41%	100
23	Do you feel the implementation method supports this cultural shift?	0%	0%	8%	51%	41%	100
24	Do you believe EMR implementation has improved the quality of patient services?	1%	1%	6%	51%	41%	100
25	Are the implementation methods appropriate for your hospital's conditions?	0%	2%	6%	51%	41%	100
	Average	**0%**	**1%**	**7%**	**51%**	**41%**	

Tabel 2.5 Policy Category Questions

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
1	Does your organization have written policies regarding EMR implementation?	1%	0%	9%	45%	45%	100
2	Have EMR-related policies been communicated to all work units?	1%	0%	9%	45%	45%	100
3	Do internal policies support patient data security in the EMR system?	1%	1%	8%	45%	45%	100
4	To what extent does leadership support EMR implementation based on existing policies?	0%	2%	8%	44%	46%	100
5	Does your organization comply with national regulations (eg , Ministry of Health regulations, Electronic Information Law) related to electronic medical records?	0%	0%	10%	44%	46%	100
6	How well does management understand the legal risks associated with EMR implementation?	1%	0%	9%	44%	46%	100
7	Are EMR policies aligned with the organization's vision and mission?	0%	0%	11%	44%	45%	100
8	Are there guidelines or SOPs specifically for EMR usage?	0%	3%	7%	44%	46%	100
9	Are policy documents available digitally and easy to access?	0%	0%	10%	44%	46%	100
10	Are key stakeholders (clinicians, IT, legal) involved in EMR-related decision-making?	2%	0%	8%	44%	46%	100
11	Does your organization understand the Ministry of Health regulations related to EMR?	0%	0%	11%	44%	45%	100
12	Does the organization adhere to international standards such as HL7, ICD-10, or SNOMED?	1%	0%	9%	44%	46%	100
13	Are end-users involved in developing EMR policies?	2%	1%	7%	44%	46%	100
14	Are there routine meetings or forums to discuss EMR policies?	0%	1%	9%	45%	45%	100
15	Do EMR policies consider the needs of different departments and professional roles?	0%	4%	6%	45%	45%	100
16	Are there written policies for data backup and recovery?	0%	1%	9%	45%	45%	100
17	Does EMR governance include cybersecurity requirements?	1%	1%	8%	44%	46%	100
18	Is there a written guideline for password usage, data encryption, and authentication?	0%	1%	9%	44%	46%	100

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
19	How often are policy effectiveness evaluations conducted?	0%	3%	8%	44%	45%	100
20	Are patients informed about how their data is used in the EMR system?	0%	2%	8%	44%	46%	100
21	Is there an internal policy addressing data breaches or privacy violations?	1%	1%	8%	44%	46%	100
22	Do users feel comfortable with policy changes related to EMR?	1%	2%	7%	45%	45%	100
23	Are policy changes communicated effectively to all users?	0%	0%	10%	44%	46%	100
24	Do EMR vendors comply with organizational policies?	1%	1%	8%	44%	46%	100
25	Is documentation regarding EMR policy implementation complete and well-maintained?	0%	1%	9%	44%	46%	100
	Average	**1%**	**1%**	**9%**	**44%**	**46%**	

Tabel 2.6 Nature Category Questions

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
1	How clearly was the EMR implementation plan explained to you?	1%	0%	9%	45%	45%	100
2	Does the EMR implementation strategy align with the needs of your work unit?	1%	0%	9%	45%	45%	100
3	Was the implementation process carried out in stages?	1%	1%	8%	45%	45%	100
4	How actively was management involved in the implementation process?	0%	2%	8%	44%	46%	100
5	Did the methods used help facilitate the transition from manual records to EMR?	0%	0%	11%	44%	45%	100
6	Was training conducted at the appropriate time before the system went live?	1%	0%	9%	44%	46%	100
7	How easy is it to access technical support when problems arise?	0%	0%	10%	45%	45%	100
8	Is the IT team responsive to issues during implementation?	0%	3%	7%	44%	46%	100
9	Do you understand the procedure for reporting technical problems?	0%	0%	10%	44%	46%	100
10	To what extent does user participation contribute to the success of implementation?	2%	0%	8%	45%	45%	100
11	How much has EMR improved your work efficiency?	0%	0%	10%	44%	46%	100

No	Questions	% Result					n
		% A	% B	% C	% D	% E	
12	Does EMR speed up patient documentation processes?	1%	0%	9%	44%	46%	100
13	Does EMR improve the accuracy of medical records?	2%	1%	7%	45%	45%	100
14	Are regular evaluations conducted regarding EMR implementation?	0%	1%	9%	44%	46%	100
15	How quickly are issues addressed once identified?	0%	5%	6%	44%	45%	100
16	Is user feedback taken seriously during evaluation?	0%	1%	10%	44%	45%	100
17	How effective is communication between units during implementation?	1%	1%	8%	44%	46%	100
18	Is information about implementation stages communicated clearly?	0%	1%	9%	45%	45%	100
19	How often does miscommunication occur during the implementation?	0%	2%	8%	45%	45%	100
20	Does the implementation team actively provide updates on progress?	0%	2%	9%	44%	45%	100
21	Do you know whom to contact if you face issues during implementation?	1%	1%	8%	45%	45%	100
22	Has the EMR implementation encouraged a shift toward a digital work culture?	1%	2%	7%	45%	45%	100
23	Do you feel the implementation method supports this cultural shift?	0%	0%	10%	44%	46%	100
24	Do you believe EMR implementation has improved the quality of patient services?	1%	1%	8%	45%	45%	100
25	Are the implementation methods appropriate for your hospital's conditions?	0%	1%	9%	45%	45%	100
	Average	**1%**	**1%**	**9%**	**44%**	**45%**	

From the analysis of Tables 2.1 to 2.6, it can be seen that respondents show a positive level of readiness for EMR implementation, although a degree of uncertainty regarding technology adoption remains. This trend demonstrates a gradual move away from manual processes, signaling preparedness for digital transformation at Kasih Ibu Surakarta Hospital. Furthermore, the responses reflect a careful and responsible attitude among staff to maintain data accuracy in the EMR system.

3.7 Testing Data Validity and Reliabilit

Validity comes from the word “valid,” which means accurate or appropriate. A validity test is used to determine whether an instrument (such as a questionnaire) is capable of measuring what it is intended to measure. In this study, validity testing was conducted to assess whether each questionnaire item accurately reflects the intended variables. Based on the statistical r-table, with degrees of freedom calculated using the formula df = N – 2 (100 – 2 = 98), and a significance level of 0.05, the critical r-value obtained was 0.1966. The results of the validity test show that all questionnaire items have correlation values greater than 0.1966, indicating that every item used in this study is **valid.**

Reliability testing is carried out to evaluate the consistency or dependability of a measurement instrument. An instrument is considered reliable if repeated measurements under the same conditions produce consistent results, which is indicated by a Cronbach's Alpha value greater than 0.60. Based on the reliability analysis conducted for all previously validated items, the results showed Cronbach's Alpha values above 0.60, meaning that all items in the questionnaire are **reliable** and consistent for use in this study.

4. CONCLUSION

Based on the respondent results for the Human Resources (Man) category, 51% scored "good" and 41% scored "very good." This indicates that the personnel are fairly skilled and knowledgeable regarding the implementation of the Electronic Medical Record (EMR) system.

For the Materials category, 51% of respondents gave a "good" rating and 41% rated it "very good," suggesting that the reference materials supporting EMR implementation are generally adequate. In the Devices (Asset) category, 52% of respondents assessed it as "good" and 40% as "very good," showing that the available equipment and infrastructure sufficiently support EMR implementation.

Regarding the Methods category, 51% rated it "good" and 41% "very good," meaning that the procedures and approach for implementing EMR are well-understood by users.

For the Policy category, 44% of respondents gave a "good" rating and 46% rated it "very good," reflecting strong management support, which positively influences user response and participation.
In the Environment category, 51% scored it "good" and 41% "very good," indicating that the hospital environment at Kasih Ibu Surakarta is highly supportive of EMR implementation.

Overall, the findings show that the Electronic Medical Record system at RS Kasih Ibu Surakarta is well-prepared for digital transformation. However, there is still a need to enhance staff training, strengthen data security systems, and ensure data accuracy to fully optimize the EMR implementation and achieve excellent results.

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