

Original Article

Electronics in Healthcare: Adaptation and Challenges of Digital Records in Somali Hospitals

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Abstract - This study investigates the utilization and practice of Electronic Health Records (EHR) in Somali hospitals through a national survey. Employing a cross-sectional survey design, the research captures a snapshot of EHR adoption across various healthcare institutions, both public and private, in different regions of Somalia. The sample includes 35 hospitals, representing a diverse mix of general hospitals, specialized hospitals, and clinics. Data collection was conducted using self-administered questionnaires and semi-structured interviews, providing both quantitative and qualitative insights into EHR usage. The study reveals that 63% of the hospitals have adopted EHR systems, with significant benefits observed, such as improved accuracy of patient records, enhanced efficiency in clinical workflows, and better coordination of care. However, challenges such as technical issues, financial constraints, and a lack of technical expertise were also identified as major barriers to effective EHR implementation. The findings underscore the critical need for targeted interventions to support hospitals in overcoming these barriers and fully realizing the potential benefits of EHR systems. The study concludes that while there is a growing recognition of the importance of EHRs in improving healthcare delivery in Somalia, substantial efforts are needed to address the existing challenges.

Keywords - Electronic health records, HER adaptation, Healthcare technologies, Digital health systems.

1. Introduction

Electronic Health Records (EHR) represent a significant advancement in the digitization of medical information, fundamentally transforming how patient data is managed, accessed, and utilized in healthcare settings [1]. Over the past few decades, the adoption of EHR systems has gained momentum globally, driven by the promise of enhanced healthcare quality, improved patient safety, and increased efficiency in clinical workflows. Electronic Health Record (EHR) systems are intended to supplant conventional paper-based records by offering an extensive digital archive of patient information that can be effortlessly accessed and shared among various healthcare providers and environments [2].

The move from traditional paper records to EHS signifies a fundamental change in the way healthcare is delivered. EHR systems provide instant access to patient information, allowing healthcare providers to make timely and well-informed decisions [3]. This immediacy is crucial for effective diagnosis and treatment. Moreover, EHRs support the integration of various healthcare services, fostering a more coordinated and collaborative approach to patient care. In

addition to improving clinical outcomes, EHR systems offer significant administrative benefits. They streamline the management of medical records, reducing the time and effort required for documentation and record-keeping [4]. This efficiency translates into cost savings for healthcare institutions, as administrative tasks are automated and the need for physical storage space is minimized. Furthermore, EHRs enhance the accuracy and completeness of medical records, reducing the likelihood of errors associated with manual data entry and handling [5].

Despite these advantages, the adoption and implementation of EHR systems present several challenges, particularly in low-resource settings. In many developing countries, including Somalia, the healthcare infrastructure is often underdeveloped, and the adoption of advanced technologies like EHRs is hindered by various barriers [6].

Challenges such as insufficient financial resources, lack of technical skills, unreliable internet access, and resistance to change among healthcare staff are significant obstacles. Overcoming these challenges is essential for the effective adoption of EHR systems in these environments [7].



Somalia's health sector lacks a national health information system. Nevertheless, certain public health sector members utilize District Health Information Software (DHIS2) to gather patient-based statistical data [8]. This electronic recording tool assists health management teams in collecting patient data to manage the service delivery system effectively [9]. Despite the fact that most health Centres utilize basic patient information recording and District Health Information Software to record the everyday operations of the hospital, EHR may help you offer better care.

With an emphasis on patient safety via clinical decision support, patient care and outcomes increase substantially. With medical imaging and test results, documentation is clear and comprehensive; automation reduces the possibilities of variation and mistakes; and, ideally, the costs associated with treating a patient are reduced by reducing duplicate operations [10]. The effective implementation of EHR is linked to the hospital's productivity and performance in order to minimize and lower the possibilities of variations and mistakes, as well as to enhance hospital performance. Furthermore, EHR deployment is linked to higher profits by guaranteeing and providing a foundation for future EHR investment.

This study aims to explore the use and implementation of EHR systems in Somali hospitals. A nationwide survey seeks to give a detailed overview of the current state of EHR adoption, identify the various systems in use, and assess the benefits and challenges associated with their implementation. This research is both timely and significant, given the increasing recognition of the need to modernize healthcare systems in developing nations to meet 21st-century demands. Understanding the current status of EHR adoption in Somali hospitals is crucial for several reasons.

Firstly, it offers key visions for technological advancement and readiness in the healthcare sector. Secondly, it sheds light on the specific challenges and obstacles that need to be addressed to support wider EHR adoption. Lastly, it identifies potential benefits, such as improved patient care, better data management, and greater operational efficiency, that can be achieved through effective EHR use.

This study also aims to add to the current understanding of EHR adoption in low-resource environments. While there is a wealth of research on EHR implementation in high-income nations, there is a noticeable lack of focus on developing countries. To our knowledge, this will be the first study in Somalia aimed at determining the level of EHR utilization in Somali hospitals and health centers. The findings from this study will serve as a guide for Somali health authorities, highlighting the potential challenges associated with the lack of EHR adoption in both government and private hospitals.

This paper is divided as follows: Section II provides an introduction to the study, outlining the importance of EHR and

the context of healthcare in Somalia. Section III reviews the literature related to EHR adoption globally, regionally in Africa, and specifically in Somalia, identifying gaps that need to be addressed. Section IV details the proposed model used in the study. Section V presents the results of the survey, discussing EHR adoption rates, types of systems used, usage patterns, benefits observed, and challenges faced. Section VI offers a conclusion summarizing the key findings and recommendations for future work.

2. Related Work

The advent of EHR has revolutionized healthcare delivery across the globe. EHR systems, which replace traditional paper-based medical records with digital versions, have been widely adopted in many parts of the world, leading to significant improvements in the efficiency and quality of healthcare [11]. The concept of EHRs dates back several decades, with the earliest systems emerging in the 1960s and 1970s in the United States and Europe. These early systems were primarily used in large hospitals and research institutions, focusing on specific aspects of patient care, such as laboratory results and medical imaging. Over time, EHR systems have evolved to become more comprehensive, integrating various types of patient data, including clinical notes, medication records, and diagnostic information [12].

In the early 2000s, the adoption of EHR systems surged, driven by advancements in information technology and the growing awareness of the benefits of digital health records. Countries like the United States and Australia spearheaded the implementation of national EHR programs [13]. In the United States, the HITECH Act of 2009 played a pivotal role by offering substantial financial incentives for healthcare providers to adopt EHR systems. This legislation was instrumental in increasing the adoption rate of EHRs, with a focus on improving patient care, enhancing data accuracy, and promoting interoperability between different healthcare systems [14]. Several EHR systems have been proposed and implemented worldwide, each with its unique features and functionalities.

For example, Epic Systems, Cerner Corporation, and Allscripts Healthcare Solutions are among the leading EHR vendors in the United States. Epic Systems is known for its comprehensive suite of applications that cover various aspects of healthcare delivery, including patient management, clinical documentation, and revenue cycle management. Cerner Corporation offers a range of solutions that focus on improving clinical and operational outcomes. At the same time, Allscripts Healthcare Solutions provides an integrated platform that supports population health management and patient engagement [15]. In Europe, countries such as Denmark, the Netherlands, and Estonia have also made significant strides in EHR adoption. Denmark's national EHR system, Sundhedsplatformen, is a comprehensive platform that integrates patient data from various healthcare providers,

enabling seamless data sharing and coordination of care [16]. The Netherlands has implemented a national EHR infrastructure known as the Landelijk Schakelpunt (LSP), which facilitates the secure exchange of PI between healthcare providers. Estonia's EHR system, one of the most advanced in the world, allows citizens to access their health records online and provides healthcare providers with real-time access to patient data.

While high-income countries have made significant progress in EHR adoption, the situation is markedly different in low-income countries [17]. In many parts of Africa, the adoption of EHR systems is still in its nascent stages. The challenges faced by African countries in implementing EHRs are multifaceted, including limited financial resources, inadequate infrastructure, and a lack of technical expertise.

However, there have been some notable efforts to introduce EHR systems in the continent. For instance, in South Africa, the NDH has been working on the development of a national EHR system known as the National Health Information Repository and Data Warehousing (NHIRDW). This system aims to enhance the quality of healthcare data and support better decision-making at all levels of the healthcare system [18].

In Kenya, the MoH has implemented the Kenya Health Information System (KHIS), which is designed to collect, manage, and analyze health data from across the country. The KHIS integrates various health information systems, including EHRs, to give a good view of the health status of the population. Similarly, Rwanda has made significant progress in adopting EHR systems through initiatives such as the OpenMRS project. OpenMRS is an open-source platform that lets those working in hospitals manage patient records and improve the quality of care. The system has been widely adopted in Rwanda, demonstrating the potential of open-source solutions in low-resource settings [19].

In contrast to some African countries that have made strides in EHR adoption, the situation in Somalia remains challenging. The healthcare system in Somalia has been severely impacted by decades of conflict, political instability, and economic hardship [20]. In this context, the adoption of EHR systems is particularly difficult, as it requires significant investments in technology, infrastructure, and training.

Despite these challenges, some efforts have been made to introduce EHR systems in Somalia. For example, some hospitals and clinics in urban areas have started to implement basic HER systems to improve patient record management and enhance the quality of care [21]. However, these efforts are often hampered by a lack of resources, inadequate technical support, and resistance to change among healthcare professionals. The limited availability of reliable internet connectivity and power supply further complicates the

implementation of EHR systems in many parts of the country [22].

The existing literature on EHR adoption in Somalia is sparse, reflecting the broader challenges faced by the healthcare system. Most studies and reports focus on the general state of healthcare in the country, highlighting the urgent need for improvements in infrastructure, workforce development, and service delivery. There is a lack of comprehensive research on the adoption and utilization of EHR systems in Somali hospitals, which makes it difficult to understand the current situation of EHR implementation and identify the specific barriers and enablers [23].

The gap in the literature underscores the need for more research on EHR adoption in Somalia. There is a pressing need to understand the current state of EHR implementation in Somali hospitals, identify the specific challenges and barriers faced, and explore potential solutions to overcome these obstacles. Such research is essential for developing strategies and policies that support the adoption and effective use of EHR systems in the country. By addressing this gap, researchers can provide valuable insights that inform the efforts of healthcare policymakers, hospital administrators, and international organizations working to improve healthcare delivery in Somalia.

One critical factor that needs to be explored in the context of EHR adoption in Somalia is the role of international aid and partnerships. Various global health organizations and NGOs have been involved in Somalia's healthcare sector, providing much-needed financial and technical support. Leveraging these partnerships could be pivotal in scaling up EHR adoption across the country. Collaborations between Somali health authorities and international stakeholders can facilitate the transfer of knowledge, skills, and technology necessary to overcome the existing barriers. These partnerships can also help in securing funding for infrastructure development, such as stable electricity and internet connectivity, which are prerequisites for the successful implementation of EHR systems.

Additionally, the cultural and societal factors influencing the adoption of EHR systems in Somalia warrant closer examination. Resistance to change among healthcare professionals is often rooted in broader cultural attitudes towards technology and innovation. Addressing these attitudes requires not only technical training but also a shift in mindset, which can be achieved through targeted educational programs and awareness campaigns.

3. Methodology

The proposed design of this section outlines the systematic approach used to investigate the utilization and practice of (EHR) in Somali hospitals.

3.1. Study Design

This research adopts a cross-sectional survey design to assess how EHR systems are being utilized in Somali hospitals. This design is ideal for capturing a snapshot of EHR implementation across different hospitals at one specific time. It enables the gathering of comprehensive data on current EHR practices, providing a detailed view of both the benefits and obstacles associated with EHR systems in the Somali healthcare environment.

Utilizing this approach allows the study to detect patterns and trends in EHR usage, which are essential for understanding the key factors that drive successful implementation and sustained use of these systems.

The cross-sectional design also enables the collection of qualitative data simultaneously, providing a holistic view of EHR practices. This approach is particularly suitable for a diverse and resource-limited setting like Somalia, where healthcare facilities may vary widely in terms of infrastructure, resources, and readiness to adopt new technologies.

The survey is structured to capture detailed information on EHR adoption rates, types of EHR systems used, usage patterns, perceived benefits, and the challenges faced by healthcare institutions, as can be seen in Figure 1. This comprehensive approach ensures that the findings are robust and can inform policy and practice in a meaningful way.

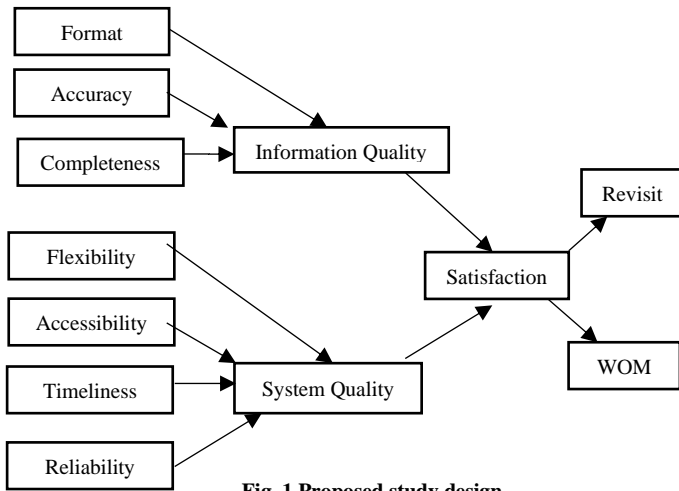


Fig. 1 Proposed study design

3.2. Sample Selection

The study targets hospitals across Somalia, encompassing both public and private institutions to make sure the sample represents a diversity of people. The selection process involves a stratified random sampling method to ensure that hospitals from various regions and of different sizes are included. This approach aims to capture variations in EHR

adoption and usage patterns that may exist between different types of healthcare facilities and regions within the country.

The sample size is determined using statistical power analysis to ensure that the study can detect meaningful differences in EHR adoption rates and usage patterns. Considering the logistical challenges and resource constraints, a target sample size of approximately 50 hospitals is deemed appropriate.

This sample size strikes a balance between achieving statistical significance and managing practical limitations such as accessibility and data collection resources. The sample is carefully selected to include hospitals with varying levels of technology adoption and different stages of EHR implementation. This ensures that the study captures a comprehensive picture of the EHR landscape in Somalia.

3.3. Data Collection Method

Data collection involves a combination of self-administered questionnaires and semi-structured interviews. The questionnaires are designed to collect quantitative data on various aspects of EHR adoption, while the interviews aim to provide qualitative insights into healthcare professionals' experiences and perspectives regarding EHR implementation. Utilizing both questionnaires and interviews enables data triangulation, thereby enhancing the validity and reliability of the study's findings.

This mixed-methods approach ensures that the research captures both the measurable outcomes of EHR adoption and the contextual factors that influence these outcomes. The questionnaires are developed based on a comprehensive review of existing literature on EHR adoption and are tailored to the specific context of Somali hospitals. The questionnaire is divided into several sections, each addressing different aspects of EHR usage, such as demographic information, EHR adoption status, information quality, system quality, satisfaction and re-visit and WOM, as can be seen in Table 1. To ensure the relevance and clarity of the questions, the questionnaire is pre-tested with a small sample of hospitals before the main survey.

3.4. Data Analysis Technique

The study employs a mixed-methods approach for data analysis, combining quantitative and qualitative insights to achieve a good understanding of EHR adoption in Somali hospitals. Quantitative data gathered via questionnaires are examined using descriptive and inferential statistics. Descriptive statistics—such as frequencies, percentages, averages, and standard deviations—offer a summary of EHR adoption rates, the types of systems in use, and their usage patterns. Inferential statistics, including chi-square tests and t-tests, are then used to explore the relationships between various factors, such as hospital type and the probability of EHR adoption.

Table 1. Questionnaire for assessing EHR adoption in Somali hospitals

Section	Question
Demographic Information	1. What is the name of your hospital?
	2. Where is your hospital located? (City/Town)
	3. What type of hospital is it? (General Hospital, Specialized Hospital, Clinic)
	4. How many beds are available in your hospital?
	5. How many healthcare professionals (doctors, nurses, etc.) are employed at your hospital?
EHR Adoption	6. Has your hospital adopted an Electronic Health Records (EHR) system? (Yes/No)
	7. In which year did your hospital adopt the EHR system?
	8. What type of EHR system is used in your hospital? (Commercial, Open-source, Custom-developed)
Information Quality	9. How would you rate the completeness of the information in the EHR system? (Very Poor, Poor, Fair, Good, Very Good)
	10. How would you rate the accuracy of the information in the EHR system? (Very Poor, Poor, Fair, Good, Very Good)
	11. How would you rate the format of the information in the EHR system? (Very Poor, Poor, Fair, Good, Very Good)
	12. How would you rate the currency (up-to-dateness) of the information in the EHR system? (Very Poor, Poor, Fair, Good, Very Good)
System Quality	13. How would you rate the reliability of the EHR system? (Very Poor, Poor, Fair, Good, Very Good)
	14. How would you rate the flexibility of the EHR system? (Very Poor, Poor, Fair, Good, Very Good)
	15. How would you rate the accessibility of the EHR system? (Very Poor, Poor, Fair, Good, Very Good)
	16. How would you rate the timeliness of the EHR system? (Very Poor, Poor, Fair, Good, Very Good)
Satisfaction	17. Overall, how satisfied are you with the EHR system in your hospital? (Very Dissatisfied, Dissatisfied, Neutral, Satisfied, Very Satisfied)
Re-visit and WOM	18. How likely are you to revisit the use of EHR in your hospital? (Very Unlikely, Unlikely, Neutral, Likely, Very Likely)
	19. How likely are you to recommend the EHR system to other healthcare providers? (Very Unlikely, Unlikely, Neutral, Likely, Very Likely)

To ensure the reliability and validity of the results, the questionnaire was pre-tested with a small sample of hospitals prior to the main survey. This pre-testing helped identify and resolve any issues with the questionnaire design, ensuring that the questions were clear and relevant to the respondents. The qualitative data from semi-structured interviews were analysed using thematic analysis, which involved coding the interview transcripts to identify common themes and patterns related to EHR adoption and usage.

3.5. Ethical Consideration

Ethical approval for this study was secured from the appropriate institutional review boards in Somalia. Informed consent was obtained from all participants, ensuring they were fully informed about the study's purpose, the nature of their involvement, and their right to withdraw at any time without consequences. The confidentiality of respondents was safeguarded by anonymizing the data and securely storing all information. Given the sensitive nature of health data and the potential implications for healthcare institutions and professionals, ethical considerations were a top priority in this study.

The study also adhered to ethical guidelines for conducting research in developing countries, ensuring that the research was conducted respectfully and responsibly. Participants were provided with detailed information about the study and their involvement, and their consent was obtained before data collection began. The study's findings were shared with the participating hospitals and relevant stakeholders, ensuring that the research contributed to improving healthcare practices and policies in Somalia. By adhering to these ethical principles, the study aimed to build trust with the participants and ensure that the research was conducted with integrity and respect.

4. Results and Discussion

As mentioned, the survey was conducted across a diverse range of hospitals in Somalia, including both urban and rural areas. This included a mix of public and private institutions, ensuring a comprehensive representation of the healthcare landscape in Somalia. Out of the 50 hospitals targeted for the survey, 35 responded, yielding a response rate of 70%. This high response rate indicates a significant level of engagement and interest in the topic of EHR adoption among healthcare

institutions in the country. The responding hospitals varied in size, ranging from small clinics with fewer than 20 beds to large hospitals with over 200 beds. This diversity is crucial for capturing a holistic view of EHR adoption across different types of healthcare facilities.

The demographic information collected from the hospitals provided a detailed context for analysing EHR adoption. It was noted that the majority of the respondents were general hospitals, followed by specialized hospitals and clinics. The geographical distribution of the hospitals included regions such as Mogadishu, Hargeisa, and smaller towns, reflecting the varied healthcare infrastructure across the country. The number of healthcare professionals employed at these hospitals also varied widely, which could influence the capacity and readiness to adopt and effectively utilize EHR systems. Understanding these demographic nuances is essential for interpreting the survey results and drawing meaningful conclusions.

4.1. EHR Adoption Rates in Somali Hospitals

The survey revealed that out of the 35 responding hospitals, 22 (63%) had adopted an EHR system. This indicates a significant uptake of digital health records within the Somali healthcare sector. However, the remaining 13 hospitals (37%) had not yet implemented EHRs, highlighting that a substantial proportion of hospitals still rely on traditional paper-based systems, as can be seen in Figure 2. The adoption rates varied across different types of hospitals, with larger hospitals being more likely to have implemented EHR systems compared to smaller clinics. This disparity can be attributed to the higher financial and technical resources available to larger institutions.

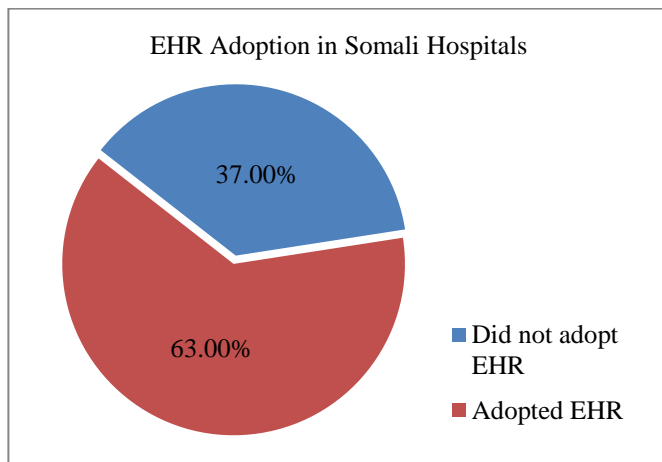


Fig. 2 EHR adaptation in Somali hospitals

Among the hospitals that had adopted EHR systems, the year of adoption ranged from as early as 2015 to as recent as 2023. This variation suggests a gradual increase in EHR adoption over the past decade, reflecting the growing recognition of the benefits of digital health records. However,

the relatively recent adoption by some hospitals also indicates that the process is still ongoing and that there may be opportunities to support further adoption. Factors influencing the timing of adoption could include financial resources, availability of technical support, and institutional readiness for change. These findings underscore the need for targeted interventions to support hospitals that have not yet adopted EHR systems and to enhance the capabilities of those that have recently implemented them.

4.2. Types of EHR Systems Used

The types of EHR systems used in the hospitals were diverse, reflecting the varying needs and resources of different institutions. Among the 22 hospitals that had adopted EHR systems, 10 (45%) used commercial EHR solutions, 8 (36%) used open-source systems, and 4 (18%) had custom-developed solutions, as can be seen in Figure 3. The choice of EHR system type was influenced by factors such as cost, ease of customization, and the availability of technical support. Hospitals favoured commercial systems with sufficient financial resources, as these systems often come with comprehensive support and maintenance services.

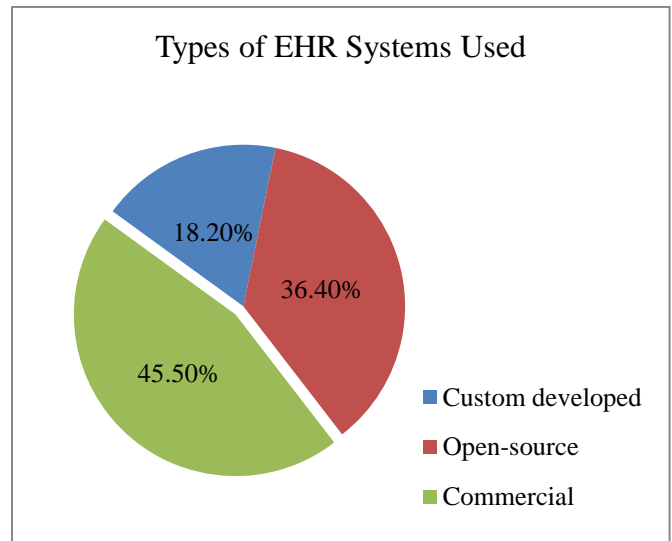


Fig. 3 Types of EHR systems used in somali hospitals

Open-source EHR systems were particularly popular among hospitals with limited budgets, as they offer cost-effective solutions with the flexibility to be tailored to specific needs. However, these systems often require significant technical expertise for implementation and maintenance. A smaller number of hospitals used custom-developed solutions, typically those with unique requirements that could not be met by commercial or open-source systems. These hospitals invested in bespoke systems designed to fit their specific workflows and data management needs. The diversity in EHR system types highlights the need for flexible support and resources to help hospitals select and implement the most appropriate systems for their circumstances.

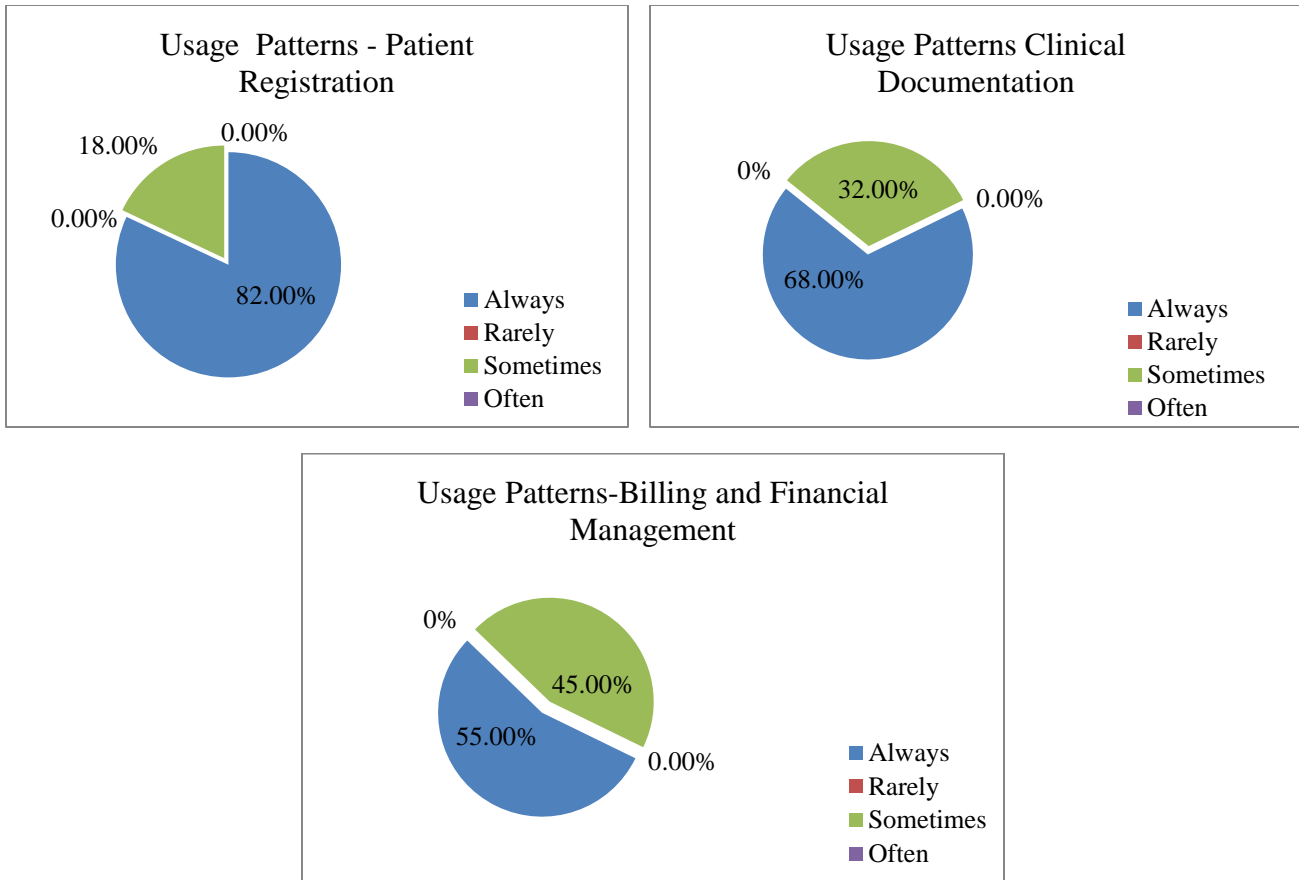


Fig. 4 Usage pattern

4.3. Usage Patterns

The survey data revealed varied usage patterns of EHR systems across different hospitals, as can be seen in Figure 4. For patient registration, 18 hospitals (82%) reported using the EHR system always or often, indicating a strong reliance on digital records for this critical function. This high rate of usage suggests that EHR systems are effective in streamlining the registration process, reducing errors, and improving patient data accuracy. However, 4 hospitals (18%) used the system only sometimes or rarely for registration, which may indicate challenges in system implementation or staff training.

In terms of clinical documentation, 15 hospitals (68%) used the EHR system always or often, while 7 hospitals (32%) used it sometimes or rarely. This variation could be due to differences in the comprehensiveness of the EHR systems or the specific workflows of different hospitals.

Billing and financial management also showed significant reliance on EHR systems, with 12 hospitals (55%) using them always or often and 10 hospitals (45%) using them sometimes or rarely. These usage patterns highlight the areas where EHR systems are most beneficial and the potential gaps that need to be addressed to achieve full integration of EHRs into all aspects of hospital operations.

4.4. Benefits Observed by Hospitals

Hospitals reported a range of benefits from using EHR systems. Improved accuracy of patient records was noted by 20 hospitals (91%), which is crucial for enhancing the quality of care and reducing medical errors. Enhanced efficiency in clinical workflows was reported by 18 hospitals (82%), indicating that EHR systems significantly streamline operations and save time for healthcare providers. Better coordination of care among healthcare providers was noted by 15 hospitals (68%), reflecting the ability of EHR systems to facilitate seamless communication and information sharing across different departments and care settings, as can be seen in Figure 5.

Reduced paperwork and administrative burden were mentioned by 14 hospitals (64%), highlighting the cost and time savings associated with digital records. Improved patient safety and quality of care were noted by 13 hospitals (59%), underscoring the critical role of EHR systems in enhancing clinical outcomes. These benefits demonstrate the transformative potential of EHR systems in improving the efficiency and quality of healthcare delivery. However, realizing these benefits fully requires addressing the challenges that hospitals face in implementing and using EHR systems effectively.

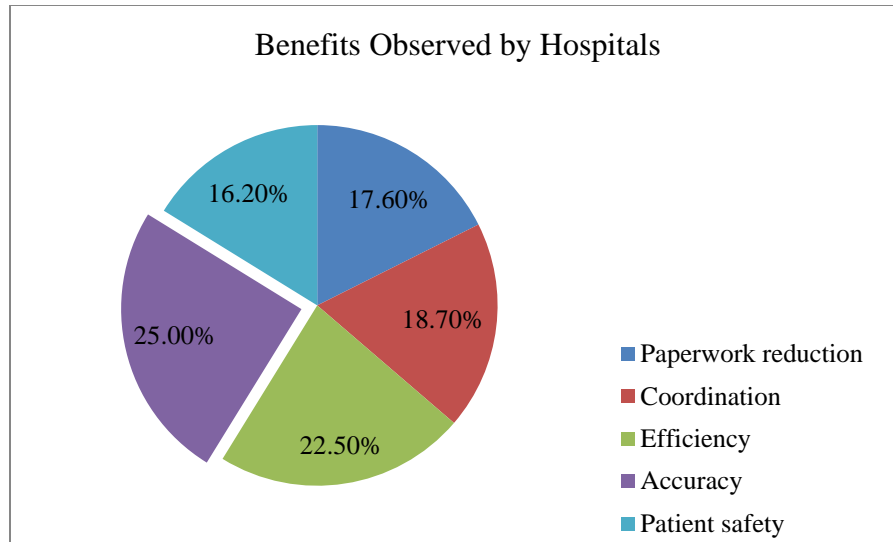


Fig. 5 Benefit observed by hospitals

4.5. Challenges Faced in EHR Implementation and Usage

The challenges encountered by hospitals in implementing and using EHR systems were multifaceted. Technical issues, such as system crashes and slow performance, were reported as very significant or significant by 16 hospitals (73%). These technical challenges can disrupt hospital operations and undermine confidence in the EHR system. Financial constraints were also a major challenge, with 14 hospitals (64%) indicating that the cost of implementation and maintenance was very significant or significant. These financial barriers highlight the need for funding and financial support to help hospitals adopt and sustain EHR systems.

Lack of technical expertise and support was a significant challenge for 12 hospitals (55%), indicating that many hospitals struggle with the technical demands of EHR systems. Resistance to change among staff was a notable issue for 10 hospitals (45%), reflecting the need for effective change management strategies and training programs to help staff adapt to new systems. Inadequate training for healthcare professionals was cited by 11 hospitals (50%) as a significant or moderate issue, underscoring the importance of ongoing training and support to ensure that staff can use the EHR system effectively. Poor internet connectivity and power supply issues were highlighted by 9 hospitals (41%) as significant challenges, particularly in rural areas, where infrastructure is often less reliable.

4.5. Reasons for Non-Adoption

Among the 13 hospitals that had not adopted EHR systems, financial constraints were the most commonly cited reason, mentioned by 10 hospitals (77%). This indicates that the cost of EHR systems is a significant barrier to adoption for many hospitals, particularly those with limited financial resources. Other reasons for non-adoption included a lack of technical infrastructure, cited by 7 hospitals (54%), and a lack

of technical expertise, mentioned by 6 hospitals (46%). These barriers highlight the need for targeted support to help hospitals develop the necessary infrastructure and technical skills for EHR adoption.

Resistance to change among staff was noted by 5 hospitals (38%), reflecting the challenges of managing organizational change and ensuring buy-in from all stakeholders. Unawareness of the benefits of EHR systems was mentioned by 4 hospitals (31%), suggesting that more education and awareness-raising efforts are needed to highlight the advantages of digital health records. These findings underscore the importance of addressing both financial and non-financial barriers to EHR adoption, including providing financial support, technical assistance, and education to healthcare institutions.

5. Conclusion

This study conducted a comprehensive investigation into the utilization and practice of Electronic Health Records (EHR) in Somali hospitals, revealing both the progress and challenges in adopting digital health systems. The findings indicate a significant uptake of EHR systems, with 63% of surveyed hospitals having implemented such systems, demonstrating a growing recognition of the benefits of digital health records in improving healthcare delivery. However, the study also highlighted considerable barriers, including technical issues, financial constraints, and a lack of technical expertise, which impede the full integration and effective use of EHR systems. These challenges underscore the need for targeted interventions to support hospitals in overcoming these barriers, ensuring that the potential benefits of EHR systems, such as improved accuracy of patient records, enhanced clinical workflows, and better coordination of care, are fully realized.

Future research should focus on longitudinal studies to track the progress of EHR adoption over time and assess the long-term impacts on healthcare delivery in Somalia. Additionally, in-depth case studies of hospitals that have

successfully implemented EHR systems could provide valuable insights into best practices and strategies for overcoming common challenges.

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