

eHealth in Saudi Arabia: Current Trends, Challenges and Recommendations

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Abstract. The purpose of this study is to explore the current status of eHealth in Saudi Arabia from the perspective of health informatics professionals. We used a case study approach and analyzed participant data using thematic analysis. The study took place between July and August 2013. Data collection included interviews with nine senior health information professionals in Saudi Arabia. The findings describe participant views on current eHealth trends in Saudi Arabia and show differences among Saudi healthcare organizations in terms of eHealth adoption. Participants also describe the challenges relating to organizational and cultural issues, end user attitudes towards eHealth projects, and the lack of specialized human resources to implement eHealth systems. Two main recommendations made by the participants were to form a new national body for eHealth and to develop a unified plan for the implementation of Saudi eHealth initiatives.

Keywords. eHealth, Saudi Arabia, Healthcare, Challenges.

Introduction

The Saudi government has dedicated vast funds to enhance national health services with the goal of offering free healthcare services to its citizens. Health information professionals are concerned about the existence of viable national eHealth initiatives, plans, policies, procedures, and standards that can support improving national healthcare services [1,2]. Among the different eHealth applications, such as the Electronic Medical Record (EMR), Electronic Health Record (EHR), Picture Archiving and Communication Systems (PACS), Telemedicine and many other technologies, the EMR has been increasingly adopted by Saudi organizations [3,4]. Although all eHealth applications show a promising future in Saudi Arabia, the field has suffered from a variety of organizational and technical challenges in implementing eHealth initiatives in the country [5, 6]. This study addresses three questions: 1) what is the current status of eHealth in Saudi Arabia in terms of implementation and progress, from the perspective of health informatics professionals; 2) what are the different types of challenges facing eHealth in Saudi Arabia; and 3) what are the existing trends and recommendations that will enhance eHealth efforts and outcomes in Saudi Arabia.

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1. Methodology

The study used qualitative descriptive approach and thematic analyses of participants' narratives. Nine expert participants were interviewed who met the following inclusion criteria: Employed by one of the following health authorities (Ministry of Health, Medical Services of the Armed Forces, King Faisal Specialist Hospital and Research Center, National Guard Health Affairs, Security Forces Hospitals) and held one of the following positions: Chief Information Officer (CIO) or equivalent executive position within a health informatics division or an elected Board Member of the Saudi Association for Health Informatics (SAHI). Interviews were conducted during July and August 2013 where each participant was interviewed for 90 to 120 minutes using a semi-structured interview format.

2. Results

2.1. Organizational and Behavioral Challenges

Some participants indicated that Saudi healthcare organizations had bureaucracy interfering with the goals of the organization, as one participant noted: "People here tend to respect the bureaucracy, which sometimes delays the progress of projects. It is difficult to put an end to this practice." A few participants also stated that some healthcare professionals were resistant to the adoption eHealth technology, as expressed by one participant: "Some users fear they might lose privileges to which they were entitled, [with the implementation of eHealth projects]." Some participants stated that projects in their organization were outsourced and, as a result, the employees were not developing into cohesive teams. Teams did not communicate with each other to implement eHealth plans, as reported by one participant: "Because projects were outsourced to different companies, we are not developing as a local team to maintain the operation."

2.2. Technological and Professional Challenges

Some participants stated that it was difficult to find qualified health information professionals especially in specific areas relating to eHealth standards and system architecture. They also reported technical challenges related to security and database management. Health information professionals in some organizations in Saudi Arabia identified non-centralized procurement of eHealth systems as a challenge where different hospitals follow different policies in the procurement of eHealth systems. Participants also identified that a road map for the implantation of ICD-10 standards was missing, as one participant noted: "Even if the standards were there, the road map for implementing those standards would not be there."

2.3. Privacy and Confidentiality Challenges

Some participants believed that patients should have the right to access their electronic health information, such as medical records, prescription refill services, and being able to communicate with physicians. Some organizations wanted to protect the identity of

female patients when they dealt with hospital employees because of religious and cultural considerations. Some Saudi women did not have photo IDs and most women in Saudi Arabia wear the hijab. As a result, some Saudi healthcare organizations implemented a thumbprint verification system to identify female patients without compromising their religious values.

2.4. Participants' Suggested Recommendations

Each participant was asked "What are your recommendations to enhance eHealth in your organization or in Saudi Arabia?" The summary of their recommendations were: forming a national body for eHealth information management; sharing the plans and road map for eHealth; legislating eHealth standards; improving eHealth infrastructure; improving eHealth interoperability; applying eHealth policy to all organizations; creating data governance; measuring organizational readiness; and raising professional awareness of eHealth.

3. Discussion and Conclusion

There are a variety of factors affecting the implementation of eHealth within Saudi Arabia. Cultural, bureaucratic, and human resource issues are some of the main barriers to eHealth implementation in Saudi Arabia. For example, bureaucracy delayed eHealth projects because it was difficult to obtain authorization from upper management to hire new health information professionals [7]. These findings are consistent with findings reported in other studies [6, 8]. The results of this study show that some Saudi healthcare professionals consider the procurement process within Saudi healthcare organizations to be a challenge. Previous studies identified some of the challenges relating to procurement issues and its impacts on the eHealth strategy of the hospital, where a disorganized procurement strategy might result in systems not being able to integrate with each other [10].

Some organizations were still facing funding issues for eHealth projects. Similarly, one study found that CPOE and CDSS were too expensive [9]. In terms of planning, the findings show that the road map for the implementation of national strategic plans had not been explained to healthcare organizations. This is similar to one study discussing the lack of eHealth planning where each organization had its own plan [11]. However, this challenge can be moderated when Saudi national initiatives have been completed. In terms of coordination, it was found that developing team communication within the organizations might be negatively influenced by outsourcing the projects. Similarly, a study found that some professionals might not be communicating or updating each other about the progress of the eHealth project because of poor management [7]. The finding of the current study is noteworthy because outsourcing the projects might make the project team more dependent on the vendor.

At the national level, the findings of this research demonstrate that although national coordination was not effective in the past, participants believed that coordination among organizations was improving. This enhancement can be related to the activation of some national initiatives.

Regarding privacy, some healthcare organizations wanted to protect the identity of female patients and used thumbprints to identify them. One study confirmed that biometric identification technology has been used in hospital registration to help with

identification. However, the study did not mention that some organizations also used this technology to create comfort for female patients that would help them adhere to their religious obligations while respecting their right to privacy [12]. Finally, health information professionals believed that access to eHealth services should be given to all patients as a basic patient right. This is similar to the same study where few hospitals provided online access for the patients [12].

In conclusion, the study examined the existing trends, challenges, and recommendations to improve the eHealth infrastructure and management within Saudi Arabia. Future research should monitor and evaluate eHealth implementation within Saudi Arabia and explore further opportunities to improve the eHealth landscape within the country.

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