



Connecting consultants with primary healthcare doctors in remote areas, mountains, and islands through available technology

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Abstract

Telehealth has emerged as a pivotal tool in bridging the gap between consultants and primary healthcare physicians, particularly in remote, mountainous, and island regions. This paper discusses the innovative NARAKOM project, which leverages available technology to facilitate this connection. The project aims to enhance healthcare service delivery, ensure general practitioners' continuous education, and improve patient outcomes in underserved areas. The project provides the confidentiality and effectiveness of medical consultations by employing mobile phones, phone calls, and the WhatsApp social networking program. Initial implementation in the Jazan region has shown promising results, and the project is poised for expansion across Saudi Arabia.

Keywords: healthcare, NARAKOM, TBC, telehealth

Introduction

Telehealth refers to the delivery of healthcare assistance at a distance through technology. It includes interactions between patients and general practitioners with specialties through the telephone and remote devices. Patients with smartphones and desktop computers can readily use telehealth applications to link them with general practitioners and consultant physicians who can diagnose, monitor, and treat acute or chronic conditions. Saudi Health System was established seven decades ago to provide healthcare via governmental hospitals and scattered primary healthcare centers. Most healthcare services are provided through governmental hospitals (80%), and private sectors offer the remaining through health insurance companies.^[1,2] The

Ministry of Health is responsible for offering healthcare services to citizens free of charge and non-Saudi people through different means. The Saudi Arabian healthcare system is evolving due to the new vision of the Ministry of Health with the development of a national health system. There is an urgent need to take new and practical steps to improve healthcare services in Saudi Arabia (SA), focusing on primary healthcare services to reduce the rate of chronic disease and improve healthcare around the country. General practitioners in rural areas confront several obstacles, including patients' refusal to obtain further secondary healthcare services after they are referred. General practitioners might also suffer from losing incentives to be updated by scientific knowledge. Until now, applications of social communication as a tool are forbidden for official work, especially between healthcare providers, to discuss patients' status due to the law of patients' privacy and confidentiality. However, we have recently established a new communication model using the available applications to improve communication between general practitioners in remote areas and other consultant physicians in different specificities working in urban and secondary hospitals. Patients in these remote areas were informed about using social applications by their general practitioners to communicate with consultant physicians to improve their health conditions. Patients and healthcare providers are keen on patient anonymity and do not discuss patients' demographics in group discussions or among other patients. Therefore, this paper aims to provide an overview of our recent intervention, which used telehealth through the NARAKOM project to improve general practice in the Jazan province of SA. To do so, we will explain in the following paragraph different headings related to our perception of practicing general practice in primary healthcare centers available in remote areas of the Jazan region. We will also give an overview of the NARAKOM project and its relation to team-based care (TBC) models. In addition, we will conclude our experience with this new intervention in the field of general practice in remote areas.

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Explanation and discussion

Telehealth in Saudi Arabia

Telehealth refers to the delivery of healthcare assistance at a distance through technology. It can contain everything from conducting medical visits to monitoring patients' vital signs remotely. Besides, it includes the training and persisting education of medical professionals. Three different types of telehealth were utilized in SA. The first is when the physician communicates with the patient via computer or telephone to book an appointment. The second type is when patient data are accessed, recorded, and shared with the physician for lab requests and prescribing medication. The last type is for follow-up, when recorded measurements, weight, or blood pressure are sent to the physician to determine the improvement.^[3] Telehealth was developed to provide primary care to underserved rural patients. The use of telehealth has been standard in many trials since the coronavirus disease 2019 pandemic. Increasing emphasis on patient satisfaction and high-quality healthcare has led to higher telehealth implementation.^[4] Telehealth presents a convenient and cost-effective method to see one's physician without leaving home, but it has a few disadvantages. Online interactions are impersonal and dangerous because the virtual provider does not benefit from a complete history or physical examination to aid diagnosis and treatment. Another barrier to the broader acceptance and implementation of telehealth is concerns about the privacy and security of telehealth systems. Healthcare providers and patients should trust that information transmission during telehealth encounters remains confidential and protected.^[5]

Primary healthcare services in Saudi Arabia

Primary healthcare is the first level of healthcare services in SA. The Ministry of Health supplies it through a network of primary healthcare centers. Such services have improved dramatically in recent decades, which has resulted in better health outcomes, such as a lower infant mortality rate and an increase in average life expectancy.^[6] Primary healthcare centers (PHCCs) are considered the first line of interaction between patients and healthcare systems. Patients with common diseases are diagnosed and treated in primary health centers. On the other hand, critical cases or those that require consultant physicians are referred to as specialized hospitals in urban locations within the Jazan Region.^[7,8] Within cities, the referred patients move to a specialized hospital to complete their treatment efficiently, whereas, in remote areas, patients suffer from the geographical nature of the mountainous regions, long distances, and low socioeconomic status, which impedes their ability to go to these assigned hospitals, leading to a deterioration of their diseases and the co-occurrence of further complications. There is a gap between general practitioners in primary health centers in remote areas and specialist hospitals in cities, reflecting the adverse side effects on patients' health in remote areas.

NARAKOM project and team-based care (TBC) models

To help patients and improve life expectancy in SA, we started the NARAKOM project unofficially in October 2022, which ensures communication between general practitioners in primary healthcare centers and consultants' physicians by using the available communication tools, mobile phone connections,

phone calls from the health center phone, and WhatsApp social networking program (easy to use and have high privacy). These communication tools have been determined to provide specialized medical consultations between general practitioners in remote areas and consultants' physicians in several urban hospitals. Our project was started and applied in the Jazan region in January 2023, and today, the Ministry of Health in SA seeks to implement it in all areas of the country. It is worth noting that the Jazan region is located in the southwestern zone of SA, with a population of 1.5 million. Most of the people in Jazan live in rural areas.^[9] The project benefits from the experiences of consultant physicians via preventive and curative treatment for patients in remote areas. On the other hand, this project helps in the medical training of general practitioners in the primary healthcare centers of remote areas via follow-up of the patient's condition, from the appropriate diagnosis by the consultant physicians to the most effective treatment in each case. The increase in these frequent cases, with their diagnosis and treatment, enhances the scientific level of general practitioners in remote areas due to repeated consultation. This project aims to raise the level of health in SA, strengthen the role of general practitioners in primary healthcare centers, and improve their scientific level through follow-up of patients and commitment to them. The golden stone in the NARAKOM project is ensuring the trustworthiness and confidentiality of the transfer of patients' information within this project, and any consultant physician who wants to participate must sign several documents stating not to reveal patient secrets and to maintain the complete confidentiality of patient information. The Saudi Ministry of Health (MOH) started transferring the delivery of primary healthcare (PHC) services from solo practice to team-based care (TBC) models. The TBC model is defined as a health professional responsible for providing healthcare services to specific persons, families, or communities to achieve coordinated, high-quality care. A recent scientific study demonstrated some barriers that may hinder the implementation of TBC. Inadequate staff training, insufficient resources, and a lack of feedback reports are significant impediments to the refinement of TBC. Another recorded barrier is the staff's perception that the TBC model affects the nature of their work and disrupts working relationships.^[10]

The NARAKOM project will solve these situations that stand in the path of the team-based care (TBC) model through adequate primary healthcare provider training with close supervision and providing them with feedback reports to support and enhance the implementation of the TBC model in PHC services. However, this project has decreased SA efforts in training and qualifying primary healthcare general practitioners in remote areas of the Jazan region. Finally, developing the NARAKOM project with a better vision for the future, the NARAKOM team is creating an application that connects consultant physicians with primary healthcare centers' general practitioners, thus ensuring ease and more effective communication. This application has decreased efforts in the Jazan region to train and qualify primary healthcare centers' general practitioners in remote areas.

Conclusion

The Saudi Arabian healthcare system has undergone a period of evolution. This has been brought about by the new vision of the

Ministry of Health and the expansion of the national health system to meet these challenges. The NARAKOM project is one of the best steps to improve Saudi Arabia's healthcare by paving the way for a team-based care project by solving its main issues and supporting it via effective methods. Although there is a limitation in this study about providing different data about the baseline before and after implementing the costless NARAKOM project, our study explores our subjective observation about enhancing the communication between primary healthcare centers' general practitioners and consultant physicians, including patients who are entirely keen on patients' rights and privacy.

Ethical approval

Not applicable.

Consent

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Author contribution

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