Chapter 48
The Role and Use of Telemedicine by Physicians in Developing Countries:
A Case Report from Saudi Arabia

Dana Alajmi
Independent Researcher, Saudi Arabia

Mohamed Khalifa
King Faisal Specialist Hospital and Research Center, Saudi Arabia

Amr Jamal
King Saud University, Saudi Arabia

Nasria Zakaria
King Saud University, Saudi Arabia & Universiti Sains Malaysia, Malaysia

Suleiman Alomran
King Saud University, Saudi Arabia

Ashraf El-Metwally
King Saud Bin Abdul Aziz University for Health Sciences, Saudi Arabia

Majed Al-Salamah
Independent Researcher, Saudi Arabia

Mowafa Househ
King Saud Bin Abdulaziz University for Health Sciences, Saudi Arabia

ABSTRACT

As technological advance leaps into the developing world, telemedicine is expected to significantly grow in many developing countries. It is important to investigate the awareness, preferences, requirements, perceptions and attitudes of physicians in Saudi Arabia towards the use of telemedicine technology. In order to promote the use of telemedicine among physicians, training should be focused on older professionals and those who show lower levels of IT knowledge and experience. This chapter uses the results of a survey that was conducted in the city of Al-Dammam, Saudi Arabia, which gathered information about physicians' awareness and attitude towards telemedicine. Most physicians reported high level of awareness of telemedicine and showed interest in using telemedicine technology in their work. Physicians' preference of using such technology was predicted by their awareness, knowledge and previous experience, using telemedicine and technology affinity. Physicians' willingness to use telemedicine was influenced by age, technology preparedness and practice.

INTRODUCTION

Worldwide, the use of information technology and software applications constitutes an integral component of the daily workload in business, banking, industry, education and healthcare settings. Computers and the Internet, as a part of modern information and communication technologies (ICTs), have changed the way of how individuals communicate and exchange information. The development of computer technology and telecommunication services has had a significant impact on quality of health care especially for rural areas where access to quality health care has usually been an obstacle (Bashshur, 2002). Telemedicine is one of those technologies that have brought an opportunity for people who are living in rural areas to gain better accessibility and quality of healthcare services.

Over the past few years, user resistance and acceptance of technology has received more attention in healthcare research (Kim et al., 2010; Chau & Hu, 2002). Schopenhauer, a German philosopher in 1860, suggested that there are three stages for the revelation of each truth. "First, it is ridiculed; in the second, resisted; in the third, it is considered self-evident".

The same situation is applicable with regards to telemedicine technology. Telemedicine in one of the technologies that help facilitate medical care at a distance and have been found useful to reach those patients living in rural and underserved areas (Cox & Towle, 2012; Alajlani, 2010). Telemedicine can include various services ranging from the simplest form as store-and-forward to the highly specialized and sophisticated services, which can be found in academic medical centers. However, telemedicine is still not self-evident because it is still not an integral part of classic healthcare practice (Weiss, 2008). The successful adoption of telemedicine technology relies mainly on the recognizing of barriers to telemedicine. Physicians' attitude and acceptance are considered some of the main challenges for telemedicine. In order to overcome these issues and facilitate the adoption of innovative technologies, it is very important to understand the factors that affect the acceptance of telemedicine technologies by clinical staff in healthcare (Kim et al., 2010).

Telemedicine is about using information and communication technology (ICT) in order to deliver health care services at a distance (American Telemedicine Association, 2013; Currell et al., 2000). Telemedicine can provide the population in particular who are living in rural areas with the opportunity to gain better-quality healthcare services (Khalifehsoltani & Gerami, 2010; Bashshur, 2002). The industrial countries have had a significant amount of experience with the use of telemedicine during the last 50 years. In 1959, Nebraska Psychiatric Institute was one of the first health organizations that implemented telemedicine in the United States (Ramos, 2010; Jung et al., 2012). It utilized a television link to connect with Norfolk Hospital, which was 12 miles away. Such a link allowed physicians to communicate with both physicians and patients on the other end (Ramos, 2010).

In April of 1968, there were some other early implementations of telemedicine services in Massachusetts General Hospital where a microwave video was used to communicate with Boston Logan airport. With such a link, Massachusetts General Hospital was able to provide instant healthcare services to employees and passengers at the airport. The services provided at the Logan Airport included cardiology, dermatology and radiology services (Ramos, 2010; Adler, 2000). Since then, telemedicine has achieved significant progress in the developed world. In the 1970's, telemedicine became a separate field of study. In the 1990's, the innovation was increased due to the appearance of new technologies like the Internet and mobility services (Wade et al., 2010). Currently, there is a wide range of services already implemented in the industrial countries ranging from basic forms to complicated virtual reality services. These services can be used everywhere mostly in areas whereas a shortage physicians and specialist of specific medical condition. Moreover, there are various

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