

## The Position of E-Health in Reshaping Doctor/Patient Communications

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Received: 29 Dec. 2015; Accepted: 10 Feb. 2016; Online Published: 28 May. 2016

### Abstract

Accessibility to all levels of information technology has experienced rapid progress in recent years, particularly in the health sector. Rapid penetration into this technology has led to changes in lifestyles and changes in the working procedures of institutions. In 2014, the number of Internet users reached 3 billion, and this number is predicted to exceed 8 billion in 2018. Statistics estimate the number of Iranian users of the Internet to be about 45 million. In 2014, more than 80% of Internet users searched for health information. Today, the Internet plays a vital role in providing such health services as education, disease management, support, basic medical treatment decisions, and doctor-patient communication.

**Keywords:** E-Health, Patients, Society, Physicians

### 1. Introduction

Basic computer literacy has created the ability to exert tremendous influence on users to provide health services. Administrative procedures performed online, rich Internet portals about health, and access to email and personal physicians have created a new dimension in maintaining health and treating patients [1]. According to Statista, a global statistics portal, the number of Internet users in 2014 exceeded two billion three hundred thousand people, and this number is expected to exceed eight million three hundred thousand in 2018. According to statistics, the number of Iranian users is estimated to be 45 million. In 2014, 80% of Internet users searched for health information; 66% of searches were associated with diseases, 56% were related to treatments, and 44% of them were for physicians. 47% of Google users have searched health-related items in the Internet. Among the customers of electronic health (e-Health) services, 69% are willing to communicate by email, 49% accept communication by IM or web portals, 45% are interested in communicating with text messages, and 40% are willing to communicate with health applications. It seems that these innovations have changed the physician-patient relationship forever [2].

### 2. An Image of the New E-Health Consumers

New social changes, including the development of a charter for doctor-patient interaction rights, increasing knowledge, and new communication technologies including the Internet, have led people to more greatly appreciate e-Health services. These new consumers of electronic health generally pursue three objectives in their Internet searches:

1. *Comfort:* Consumers today are heavily involved in work or education or are seeking to preserve their leisure in any way. Therefore, they look for ways to avoid wasting time and

money being admitted to medical centers [3].

2. *Control:* Taking control of one's personal health or at least playing an active role in it is important for many people. New e-Health consumers are looking to learn about their disease, take the process of improving their health into their own hands, and participate with their physician in treatment [4].

3. *Selection:* Consumers are looking for diversity in their choices. The lack of specialized clinics of alternative medicine and traditional medicine has led people to search alternative treatment strategies on the Internet. Health information sites provide lists of health information from doctors and clinics so their contacts can make better choices [5].

### 3. The Role of E-Health Services in Reshaping Treatment

Considering that the Internet is a cheap, easy source of information on where, when, and how to obtain health care and its costs, it can be said that the Internet has changed the doctor-patient relationship. Gradually, the patient is being transformed into a consumer [6].

In general, the Internet's vital roles in providing health services include consumer education, disease management, support in making clinical decisions, patient and physician communication, and efficiency in patient administration [1, 7].

#### 3.1. Consumer Education

Despite concerns about the accuracy of the information available on the Internet, there are many benefits in online health information. Medical websites that provide active symptoms of checking suppliers saves the time usually wasted waiting for doctors to respond to the disease. Patients can provide vital information to prevent diseases and risk factors that ultimately lead to reducing health care costs [8].

### 3.2. Disease Management

Chronic cardiovascular diseases account for 70% of treatment costs and 80% of deaths in the United States. Improving the management of these diseases through the Internet can reduce costs and mortality rates. For example, after these patients are trained by specialized websites, a third of them consume their medications more regularly [9, 10].

### 3.3. Supportive Role in Clinical Decisions

Every year, a large number of people lose their lives to medical errors. This number is comparable and sometimes even higher than the number of AIDS and cancer victims. Providing safe and reliable services at the right time and in a timely manner can increase patient satisfaction and reduce costs and losses. Support systems are designed web-based with automatic alarms and using the scientific resources and application of appropriate standards that can help physicians in making accurate and precise controls [11, 12].

### 3.4. Doctor-Patient Relationship

The appropriate use of electronic communication such as e-mail can solve many of the problems associated with hasty phone calls. The patient may forget to ask a question in telephone communication or misunderstand the doctor's advice. But at the same time that e-mail is quick, it also facilitates following-up and calling doctor. In fact email is the new flexible form of communication which allows the consumer to read his/ her calls at the right time and the time and do not lose too much costs for telephone communication [13, 14].

### 3.5. Increase in Administrative Efficiency of the Patient in the Clinic

Before the advent of Internet technology, there was no way to escape the inefficient paper-based system: the difficult maintenance of hordes of prescriptions and medical records, completing admission forms and preparing, storing, and transferring them to a large medical center imposed high costs on both patients and treatment centers. Today, some actions can be done through the Internet, giving the following results:

1. Waste of time and indiscriminate use of paper is prevented;
2. The speed and efficiency of compliance and archiving processes of medical records are increased;
3. About 10 to 100 times the original costs is saved [15-17].

## 4. Studying Current Status of E-Health in Iran

The project of developing and using ICT in Iran (TEKFA) began in 1381. It aimed to prepare the conditions for Iran's entrance into the era of information and communication and to bring information technology into government organizations in the state budget. In the Ministry of Health and Medical Education, the strategy for developing health information and communication technology (TEKFAP) was formed. It contains the four main aspects of e-learning, digital libraries, clinical information services, and administrative information services [18, 19]. According to statistics obtained from the Centers of Electronic Services and web pages, using active electronic learning methods are effective in preventing, protecting, and improving the quality of health-related cases. The online rheumatology clinic website has features such as an appointment management

system and an office financial system by the clerk, a smart profile can be filed for each patient and it is possible to respond to the advice of doctors. Statistics from this site indicate that 1,500 visitors registered daily in 1393. Of those users, 54% entered the clinic's site through search engines, 20% used social networking, 18% connected directly, and 8% used links from other sites. Moreover, 67% of the visitors were from Iran, 13% of them were from America, 2.5% were from Germany, and the rest were from 118 other countries. To enter the Internet, 60% of users used desktops, 31% used cell phones, and 9% used tablets [20]. These figures represent the appropriate reception of all patients and consumers of e-Health services provided in this base, and these examples show the high potential for community activity in this area in Iran.

## 5. Conclusion and Recommendations

The increasing importance of e-Health services in expanding public health, saving time and costs, and improving prevention and treatment processes calls for the provision of an appropriate educational infrastructure to increase the efficiency of such services. Among the opportunities and suitable environment for education, working with computers and using the Internet should be provided for people. Custodians of the public health sector should reduce the adverse impacts of directional, false, or outdated information in the Internet by introducing reputable websites.

Additionally, due to the impact of e-health services on its users, e.g., comfort, control, and the selection of health, it is recommended that a good investment be made on social networks with monitoring of groups in the health profession and support given to engineering groups.

### Acknowledgments

The authors would like to thank the "Clinical Research Development Unit" of Baqiyatallah Hospital for their kind cooperation. They also appreciate the kind cooperation of the dear patients.

### Authors' Contributions

All authors contributed significantly towards the study.

### Conflict of Interest

This study had no conflict of interest.

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