

The Impact of eHealth and mHealth on doctor behavior and patient involvement: an Israeli and Portuguese comparative approach

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Abstract. Based on the experience of a Short Term Scientific Mission (STSM) promoted by COST Net and developed in CIES/ISCTE-IUL (Portugal), this paper presents a reflection about the implementation of Information & Communication Technologies (ICT) in the healthcare sector in Israel and Portugal. Specifically, we focus on the impacts of ICT or eHealth on patient empowerment, as perceived by doctors and managers in order to better comprehend the role of national policy and explore the options for building a national strategy regarding ICT in healthcare.

The experience of the Portuguese healthcare system was selected and compared to the results found in a similar research in Israel.

Methodologically, in-depth interviews with the Ministry of Health, the private sector, patients associations and researches were used to collect data. Purposeful sampling was used to select respondents, and secondary sources were used for triangulation.

The findings of the research work show that the increased deployment of ICT has furthered patient empowerment (1). From the doctors' perspective, while ICT has provided more information in the long-run, changes of these magnitudes were not easy in the beginning. These findings were similar in both countries.

The work concludes that ICT tools were successfully implemented and the general perception is that they have been beneficial. The work provides information in order to understand and improve ICT services. Additionally, the results suggest alternatives for future investments in these technologies.

Keywords. eHealth, National Health Policies, Empowerment, Qualitative Research

Introduction

Information & Communication Technology (ICT) utilization has been increasing at a tremendous pace over the last years, and in particular, the use of mobile devices, offer great opportunities for many sectors to improve efficiency and reduce costs, but at the

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same time it poses new challenges. While the population can access more information in real-time, legal issues, such as privacy and security, and social problems, such as the digital divide, need to be addressed as well. The healthcare sector is one of those that in recent years have benefited from ICT developments, offering a new way to reach patients and to manage the healthcare system..

In 2005, the WHO created the Global Observatory of eHealth (GOe) as part of its eHealth strategy, and has defined Electronic Health (eHealth) as: “the cost-effective and secure use of information and communications technologies in support of health and health-related fields, including health-care services, health surveillance, health literature, health education, knowledge and research” (2). Cross country comparisons can shed light on patterns of diffusion of these new technologies. In this paper we offer insights from a preliminary comparison of Israel and Portugal.

Initial research in Israel has demonstrated that increased deployment of ICT has increased patient empowerment and involvement (3). From the doctor’s perspective, although ICT have provided more information, changes of these magnitudes were not easy in the beginning and good leadership was the key for success.

In recent years, in Israel, not only was an Electronic Medical Record (EMR) implemented, but also the providers have been providing different services on-line and some via mobile phones. With these services the health providers have granted the patients access to their own healthcare information, a key step towards more complete patient empowerment (2).

Today, patients can access their medical records from a computer or smartphone, in a user-friendly way and with clear information. This system is called Personal Health Record (PHR). The PHR facilitates the spread of more accurate information with meaningful visualizations and minimizes queuing time at hospitals (2). Additionally, administrative services are offered via the PHR and other services as electronic prescriptions or ePrescriptions began to be offered.

Based on the experience of a Short Term Scientific Mission (STSM) promoted by COST Net and developed in CIES/ISCTE-IUL (Portugal), this paper presents a reflection about the implementation ICT in the healthcare sector in Israel and Portugal. Specifically, we focus on the impacts of ICT on patient empowerment and physician behaviour.

1. Methods

A qualitative approach, and specifically the phenomenological design, was used in order to understand the phenomenon through the feelings, perceptions and experiences of the study objects from a holistic perspective.

The selection of participants was based on the a priori approach, which selects the participants in advance based on the research problem and purpose (4). The final sample was composed of 17 key informants in Israel and 8 key informants in Portugal. The sample included interviewees from the government, patients' organizations, the private sector, academia, healthcare organizations and physicians, as described in Table 1. For logistic and time reasons, patients were not included in the sample.

In-depth interviews with semi-structured questionnaires were used to collect the data. The interview protocol included questions regarding the impact of ICT on patients and physicians, as well as the evolution of ICT and the role of government. The

Table 1. Sample of interviewees

Sector	Israel	Portugal
Government	3	2
Patient's Organizations		
- Organization for the Patient's Rights	1	
- Respira – Association for people with Chronic Obstructive Pulmonary Disease (COPD)		2
- Portuguese Diabetes Association		1
Academia	1	1
Private Sector	1	1
Healthcare administrators	9	-
Physicians	2	1

duration of each interviewee was approximately between 45-60 minutes and was done at the work place of the interviewees. In addition to the interviews (primary sources), secondary sources such as working papers, articles and presentations were analysed both to discuss the results and to triangulate the findings.

To analyse the data it was used the Grounded Theory which consists of recreating and understanding the perspective of the interviewee by applying categories and sub-categories to the data.

2. Results

Even though in Israel and Portugal, the interviewees had mentioned that patient empowerment has increased, there were some specifications especially among patient's organizations regarding the risk of the patient getting more information through Internet and Social Media.

Regarding the effect of the information in the Internet on patient empowerment, the interviewees agreed that it is very important. The interviewee from the Portuguese Diabetes Association revealed that given the nature of the disease, it is good to know what the patient know and if that is relevant information. In spite other studies reveal other conclusions (5) this interviewee doesn't perceived the patient empowerment as a risk but as an opportunity to the physicians because the discussion between the patient and physician is positive.

Also in Israel, interviewees highlighted the increasing role of the patients. Once they are aware of the possibilities and the barriers they can overcome, then as "*the patient is more educated, it can be really a partner in such a treatment, should be a partner*" (member of the ministry of health), and should be involved.

However, according to some of the answers, patient involvement also has its risks, as more responsibilities are given to the patients to judge the quality of medical information found on the Internet (e.g. through Google searches or social networks).

In the Portuguese patients' association it was mentioned that with some diseases the importance of eHealth tools is tremendous. When interviewing representatives of Respira (a Portuguese Association for patients with COPD), the interviewees mentioned that when the patient has a respiratory disease and weather conditions are not favourable and is difficult to reach the hospital, eHealth tools such as email,

internet, and mobile applications could be a great resource of remote communication. In addition, ePrescriptions can help chronic disease patients to get their medicines without going every time to visit their physician.

At the same time, respondents agreed that face-to-face communication is also important. Face to face meetings reduce anxiety; *“people need the doctor”*.

Regarding feedback and patient participation, an interviewee from the Portuguese Ministry of Health mentioned that *“I think that patients are starting to have now a place they did not have”*, referring that in the last 5 years the Ministry has started thinking about the patients as stakeholders. Initiatives such as eBooking (the possibility to book an appointment with a general doctor through the Internet) or the free use of PHR through the official Patient Portal, are important initiatives that enhance the consumer's voice in the care delivery process.

Similar findings emerged in Israel. While from the interviews it was not clear if the patients need to be in the first stage of every implementation program in eHealth, they are an important part of the evaluation of those programs. The main areas of patient involvement mentioned were communication and feedback (from periodical surveys), social networks and patient education.

“gradually, the attitude in the world is patient empowerment, this is attitude, health is so expensive without the support of patient we cannot achieve anything, patient empowerment is a very important value...” (member from an Israel research institute).

Regarding issues like adaptation of physician to new technologies; results in both countries were similar, highlighting the idea of physicians being reluctant to changes.

These barriers were overcome as physicians began to understand the benefits of the tools and with the arrival of a new generation of doctors (6). One of the interviewees in Lisbon, mentioned that it is important to share the ownership of innovation with the physicians when they are reluctant to change. According to the interviewee from the Portuguese diabetes patient's association the main barrier is that physicians were not used to technology, however the Association motivated its physicians by showing the importance of sharing information and provide clinical information. Physicians' behavior can be affected by eHealth tools by changing the way decisions are made. For one of the interviewees, one of the most important advantages of eHealth tools is that allows improvement in the way medical decisions are made by physicians, as they have access to more information in real time about their patients.

3. Discussion

3.1. Increasing consumer voice through eHealth and changing physicians behavior

The access to more information in real time, brought about by eHealth tools and the development of new technologies has increased patient empowerment and consumer voice. From the findings of the interviews, it seems that this increasing access to information is not a risk and that having a more educated patient is seen as an advantage. While in Israel, some concerns about patient eHealth literacy, the “too much information” syndrome, and the risk of inaccurate or misleading information were raised by some of the interviewees, this was not the case in Portugal. The possibility for patients to discuss information and previous knowledge with the physicians was seen

as something desirable. Moreover one of the interviewees emphasized the idea that the physician should give the technical details, but the knowledge can be acquired by the patient himself. Due the large amount of mobile applications developed without widely accepted scientific data, patients can download applications to their mobile phone to control their health, but the lack of research and validity of these apps pose a risk, followed by the question, who is accountable?

One of the common aspects found was that notwithstanding the ability of eHealth tools to facilitate access to information without visiting the doctor, the patient-physician relationship remains important. In addition, in both countries physicians are an important barrier for implementation. As medical schools are very conservative, adaptation to new tools and utilization of new mechanism of communication with patients are aspects that organizations and government should take into account. One of the issues is that health professionals are reluctant to use technological innovative tools (1,2,7).

3.2. Policy implications

In terms of consumer voice, as patients are becoming more involved through the utilization of different tools as EMR, PHR, mobile apps and other communication channels, regulation and more research should move if possible at the same pace. With more empowerment come more responsibility and more decisions. However the decision making should be based on true and evidence-based information. In terms of physician behavior and organizational change, more education to healthcare human resources should be integrated in any plan. The medical school may change its paradigm, but this change should not deteriorate the patient-physician relationship, but enable shifts that do not jeopardize patients' safety and the quality of clinical decisions. Patients are more informed and thus the level of autonomy has increased (1). These changes pose a challenge to the physicians and health institutions that need to re-think the patient/doctor relationship.

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