Review Paper

Improve Health of the Elderly People With M-Health and Technology

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ABSTRACT

Objectives Advanced educational techniques with smartphones help medical staff to control diseases and reduce their complications. Application of communication technologies in health services through changing patients' behaviors (especially self-care) has had a growing trend in the prevention, treatment, and medical education of different age groups, especially the elderly. The support role of families for the elderly (despite their rising life expectancy) is decreasing mainly due to the generation gap between youth and the elderly, lower number of children, and higher life expectancy of the elderly. The purpose of this paper is to assess and improve the health of the elderly people with m-health (use of mobile telecommunications and wireless multimedia to integrate and develop successful health care delivery systems) and technology.

Methods & Materials The present study is a review study conducted through the search of reputable scientific resources such as Scopus, ScienceDirect, Cochrane, SID, Elsevier, ProQuest as well as advanced search on Google and Google Scholar in 2010-2017. It should be noted that a number of papers used in this study have been systematically reviewed, which would contribute to the comprehensiveness of the research result. A total of 65 papers and research papers were reviewed, of which 31 were used in this study.

Results Findings indicate that the main challenge in using m-health in the elderly is the lack of electronic literacy and phobia of technology. Resolving this problem requires the provision of infrastructures, codes and standards and more research in this area. Cellular technology (what mobile phone networks are based on) can play a key role in controlling the health of older diabetic patients (as an example) and using these technologies in Iran and other countries with acceptable justification can be used as a complementary tool in modern medicine.

Conclusion Mobile care not only is effective in reducing costs by providing easy access to care and its various aspects, it also improves patient's relationships and care providers as well as increasing self-care effectiveness, especially in old age. Recent advances in mobile technology provide many opportunities for improving the health and well-being of individuals; for example, ability to monitor and rapidly report changes in their health status, education of a healthy lifestyle, quick diagnosis, facilitation in information exchange, and promotion of health care. This technology can be effective in the sense of autonomy and safety of the elderly and it can improve their quality of life. Also, the use of this tool can increase the satisfaction of the elderly and encourage them to continue their treatment and eventually prolong their lives.

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Extended Abstract

1. Objectives

Modern educational methods using smartphones can help control illnesses and reduce their complications [1]. Application of communication technologies in the field of health services and its proper management by changing people's attitudes and, in particular, self-care, can have a significant effect on the prevention, treatment and medical education of people, especially the elderly [2]. The supporting role of families is declining mainly due to an increase in the gap between younger and older generations, reduction in the number of children, and increase in the elderly's life span. This situation will increase the need for more healthcare services during the aging period and providing the necessary prerequisites where health information technology is one of the most important components [3]. The purpose of this article is to examine the role and importance of mobile health technology in promoting community health, with a focus on the health of the elderly.

2. Methods and Materials

The present study is a review study by searching for keywords related to the comparative category of mobile applications in the elderly such as "mobile health," "aging," "health promotion," "technology and health care" in reputable scientific resources such as ProQuest, Scopus, ScienceDirect, Cochrane, Iranian Scientific Information Database (SID), Elsevier as well as an advanced search in Google and papers published in Google Scholar from 2010 to 2017.

This research has been approved by the Faculty of Paramedical Sciences at Tehran University of Medical Sciences. A number of the papers used in this study are systematic reviews that will help us comprehend the results of the study. A total of 65 research papers (2 from SID, 2 from ScienceDirect, 24 from Scopus, 3 from ProQuest, 15 from Elsevier, 5 from Cochrane, and 14 from other databases) were examined. Of these, 29 most relevant papers were selected and used in the study. In a similar study in Sahara, Africa, 475 papers were systematically reviewed where PubMed, EMBASE, Web of Science, Cochrane and some other databases from 1992 to 2012 were reviewed. It was suggested that most problems in previous studies were related to the short period of review and the lack of enough follow-up period.

3. Result

Findings indicate that the main challenge in using mobile health in the elderly is lack of electronic literacy and resistance to use technology [4]. This requires the provision of infrastructures, regulations and standards, and more research in this field [5]. Mobile health technology can play a key role in controlling the health of older diabetic patients [6, 7]. The use of these technologies in Iran and other countries has drawn considerable attention and can be used as a complementary tool in modern medicine in the future [8].

In conducted studies, the use of mobile health technology to diagnose diseases has been reported as a component that can accelerate the diagnosis and monitoring the symptoms of disease remotely [5]. The use of portable tools for the transmission of educational concepts in both developed and developing worlds is increasing, especially when combined with audio, video, and multimedia [9]. Patients can receive care through the use of this technology anywhere even at home through ease-of-use applications, and mobile-based technologies in resource-limited settings can result in improved care outcomes [10].

This technology can bridge the gap between the demand for information and its accessibility, but this requires an increase in awareness and skill in the use of electronic information and communication resources such as mobile health [11]. In literature, the existing challenges to the implementation of mobile health are as follows: absence of a predictive system in some of applications, inconsistency in the differential diagnosis of diseases, lack of connection and linkage to health systems, lack of appropriate care and follow-up systems, and poor quality of provided cares.

Also, the effects of mobile health have not been well-documented in some of these studies [12]. The findings show that sending text messages to patients with type 2 diabetes leads to self-care behaviors such as adherence to proper diet and medication, self-monitoring of blood glucose levels, daily exercise, and foot self-care [13].

4. Conclusion

The use of mobile phones in providing care not only helps in reducing costs and causes easy access to various healthcare services, but also improves relations between patients and caregivers and increases the impact of self-care especially for older adults [11]. Recent advances in mobile technology provide many oppor-

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tunities for improving the health and well-being of individuals, the ability to rapidly monitor and report the changes in health, helping to create a healthy lifestyle, quick diagnosis of health conditions, facilitating information, and promotion of health care [14].

This technology can help the independence of the elderly and improve their quality of life [15]. Also, the use of this technology can increase the satisfaction of the elderly and motivate them to continue their treatment and, finally, to survive [16]. However, security and privacy concerns still exist [17], and legal constraints remain a barrier to the development of this technology; and also there is resistance to the use of this technology [18]. There is no adequate knowledge of this technology, and local standards have not been specifically defined in this regard.

Ethical Considerations

Compliance with ethical guidelines

In conducting this research, there was no need to follow the ethical guidelines.

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Conflict of interest

The authors declared no conflict of interest.

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