Novel Health Mobile Technology as an Emerging Strategy in Diabetes Management

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Abstract

Diabetes is a chronic disease that requires patient awareness, education, and self-management of the disease by the patients. Mobile revolution and the accessibility of IT advances can serve as a connecting bridge in healthcare system which facilitates the treatment of the diseases like diabetes. However, the adequacy of these procedures needs to be evaluated thoroughly. Therefore, the authors have systematically reviewed the ongoing clinical studies using Mobile Health applications for diabetes

Original articles published in ISI indexed journals from PubMed database over the period of 2007 to 2014 were collected using specific key words. Selected papers were divided into mobile applications for diabetes management (includes applications related to diabetes management), mobile applications for patient education (includes all the articles that uses smart phone as a tool for health education) and mobile applications for patient behavior modifications (included studies relating the mobile applications that affect and contribute to behavioral changes).

Mobile health interventions resulted in significant clinical improvement and advancement in most of the recent studies. Most of Smartphone apps were evaluated for patient education and management. Implementing longlasting mobile health platform in real-life may be a challenging task and would require sufficient and adequate infrastructure. Cost benefit and cost-effectiveness analysis are essential before implementation of such systems.

Keywords: Smartphone Apps, mhealth, Health Informatics, Diabetes Management, Mobile Health

Introduction

The huge developments and advancements in mobile phone technology and its applications coupled with equally robust growth of telecommunication can serve to give patients a superior access to human services data, which can make their life simpler and empower productive self-care. Electronic health services or eHealth is the utilization of informative data and communication technologies for health which is growing rapidly all around the globe. eHealth interventions can make the web-based health services easier, accurate, and cost effective. In this perspective, IT technologies together with mobile handphones can play a vital role in facilitating the spread of information and hence help better administration of the illness. A recent study has shown that there will be 11.5 billion connected cell phones on on utilize around the world, and the worldwide portable information traffic will expand multiple times constantly 2019.

Thus, the health care delivery can ride on this growth to reach the patients with innovative and new health care solutions.

mHealth

Mobile Health (mHealth) is a part of the more extensive field of eHealth that utilizes cell phones as the base of human health care related problems. mHealth administrations can likewise make the health services simpler, quicker, exact, and cost effective. WHO characterizes mHealth as "mobile health(mHealth) is a part of electronic health (eHealth), and it is the arrangement of health administrations and data through versatile innovations, for example, cell phones and Personal Digital Assistants(PDAs)". mHealth expects to empower the patient to self-care and enables the health experts to remotely catch up their patients.
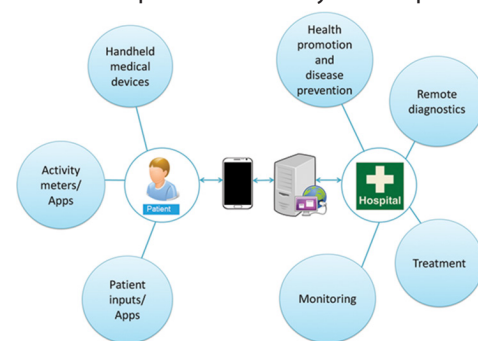

Fig 1: Schematic diagram of implementation of mHealth in a hospital setup.

mHealth in diabetes

Diabetes mellitus has been the most widely recognized chronic infection influencing individuals as revealed by the International Diabetes Federation with in excess of 366 million individuals at present influenced and is relied upon to arrive at 552 million continuously 2030.The high mortality and dismalness because of interminable inconveniences which make diabetes the main source of visual deficiency, renal disappointment, ischemic coronary illness, and appendage removal. Diabetes mellitus is viewed as exorbitant malady as far as monetary weight since the social insurance use for diabetes in United States during 2011 was 7.7 billion US dollars with direct expenses of 3.4 billion US dollars and backhanded expenses of 4.3 billion US dollars.

Conclusion

Results of many systematic and scientific reviews and meta-analyses indicate that interfering the mHealth applications for most of the chronic diseases resulted as mixed outcomes. However, in our case study, to review the applications of mHealth for diabetes showed positive outcomes from most

of the studies i.e. about 88% after applying the mobile health applications in various aspects of diabetes treatment like managing diseases, behavior monitoring, and patient education. Even many of the studies have shown that simple text messages are very effective in improving the behavioral and clinical outcomes. Patient compliance is an important factor in long-term mHealth interventions. Many patients may not be comfortable being monitored from a remote place. Thus, patient privacy–related issues becomes a hurdle in the way of mHealth. Cost of such interventions are needed to be studied with respect to the available options. Cost-effectiveness and cost benefit analyses with mHealth technologies are therefore necessary to implement these systems on large scale.

Recent Publications

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