doi: xxx/semj.xxx

Mobile Health and HbA1c in Diabetics: A Review Study

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Received: 11 Dec 2016
Accepted: 01 Jan 2017
Epub: 23 Feb 2017
Ppub: 15 Jan 2018

Abstract

Background: The global diabetes mellitus (DM) prevalence would increase from 171 million in 2000 to 333 million in 2025 and to 366 million in 2030. Moreover, DM, as the 20th cause of DALYs in 2002, will be the 11th cause of DALYs in 2030. On the other hand, e-health (electronic health), including mobile health (m health), has been claimed that it would empower diabetic people to better manage their condition.
Objectives: We aimed to answer this question: To which extent could e health and m-health change the management of DM by reducing the level of HbA1c?
Methods: Academic databases of PubMed and Scopus were searched, using different combinations of terms such as "e health", "E Health", "mobile health", "m health", "M Health", "M health", "Tele monitoring", "Diabetes Mellitus", "HbA1c", "Glycosylated Hemoglobin", "Smart Phone", "SMS" and "MMS". The searching was limited to the English language and only systematic review or meta-analysis studies were reviewed.
Results: Overall, 13 systematic reviews and meta-analysis were assessed. All of them included RCT (randomized control trials). In sum, 555 articles, including 67481 (in the range of 4 to 37695) people were studied. The time of publishing these studies was between 1980 - 2014. These studies were conducted in 25 countries from all continents. One article was reported from Iran. Interventions were: SMS (short message service) by mobile phone or Email, MMS (multi media messaging service), Video-conferencing and personal digital assistant (PDA). A total of 3 studies reported a significant decrease in HbA1c after applying interventions. Six studies reported a small but significant decrease in HbA1c, including a pool effect of 20.1% - 20.5% and effect size of 44% in decreasing this index. Four studies did not report any significant reduction in HbA1c.
Conclusion: There are many clinical studies that assessed the effect of e health or m health on diabetes management. The main bulk of these studies show a significant but small effect on reduction HbA1c. On the other hand, there are some studies that did not conclude such an effect. Therefore, strong evidences provided by large scale studies are needed to support the long term effect of e health or m health on the diabetes management.

Keywords: E-Health; M Health; Diabetes Mellitus; HbA1c; Iran