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Smartphones' diabetes self-management applications for Saudi diabetes patients in King Fahad Specialist Hospital-Dammam

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Background: At the age of technology, many healthcare providers and patients start to use new tools to manage and monitor the health conditions especially with chronic diseases which become easy to manage with different kinds of technologies. One of the latest technologies is using smartphone apps by the patients and the doctors to monitor, evaluate, and share the data between each other. In the mobile apps market, there are many applications that help the diabetes patients to observe their glucose level and what is the correct dose of insulin they should take. Also, some of diabetes application recommend to patients a special diet or meal based on their glucose level. Moreover, other apps come with special devices could be attached to the smartphones to measure the patients' glucose level. In this proposal, some of diabetes iPhone applications will be evaluated, which are Diabetes App and iBGStar App, to provide and implement it for Saudi diabetes patients in KFSH-D in Eastern Region of Saudi Arabia.

Purpose: To improve the quality of monitoring and controlling the diabetes among the diabetic patient by recommending the most effective diabetes apps (Diabetes App and iBGStar App) for Saudi diabetes patients in KFSH-D in Eastern Region of Saudi Arabia, defining the cost for these apps and determining the ability of providing these apps and smartphones to the healthcare providers and their patients in KFSH-D.

Method: Target population will be diabetes patients and healthcare providers in King Fahad Specialist Hospital in Dammam, Eastern Region of Saudi Arabia. The Sampling methods is to select randomly 400 of diabetes patients (25-55 years old) out of 4000 diabetes patients from 21,000 patients who follow up yearly in KFSH-D; providing to them the diabetes apps and devices and observing the improvement in their conditions for three years. The Diabetes Self-Management instrument (1) will be used with determination of validity and reliability. Implementing the Diabetes App and iBGStar App has a great benefit will increasing the quality of life for the diabetes patients, help diabetes patients to control and monitor their blood glucose (BG), increasing the number of visits to the clinics, and reducing the long-term cost for the patients and the HCPs. The sampling procedures are getting the IRB approval, buying the iPhones, Apps, and monitor devices, training the HCPs such as doctors, nurses, and health education specialists to use the Apps and devices, training the patients to use the Apps and devices, monitoring the progress, evaluating the patients satisfactions about the usage of the apps, interviewing the HCPs every six months to discuss the patients' improvement, giving the patients questionnaire every year to assess the effectiveness of the apps, and finally collect and analyze the data to determine the efficiency of the study.

Results: The expectation from this study is to allow the diabetes patients to managing and monitoring their BG by providing Diabetes App and iBGStar system, and permit them to communicate easier and faster with their healthcare providers.

Conclusions: The proposal is the first step to improve the quality of healthcare in Saudi Arabia. It also will improve the interaction between the doctors and their patients. Moreover, implementing and recommending and providing them to diabetes patients, will help the patient increase their self- management for diabetes, reduce and minimize the cost, decrease the patients' visits, and will be the basic stone to increase the e-clinics.

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