

MISQ Archivist

Empowering Patients Using Smart Mobile Health Platforms: A Randomized Field Experiment

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Abstract

With today's technological advancements, mobile phones and wearable devices have become extensions of an increasingly diffused and smart digital infrastructure. In this paper, we examine mobile health (mHealth) platforms and their health and economic impacts on the outcomes of chronic disease patients. To do so, we partnered with a major mHealth firm that provides one of the largest mobile health app platforms in Asia specializing in diabetes care. We designed and implemented a randomized field experiment based on detailed patient health activities (e.g., steps, exercises, sleep, food intake) and blood glucose values from 1,070 diabetes patients over several months. Our main findings show that the adoption of the mHealth app leads to an improvement in health behavior, which in turn leads to both short term metrics (such as reduction in patients' blood glucose and glycated hemoglobin levels) and longer-term metrics (such as hospital visits and medical expenses). Patients who adopted the mHealth app undertook higher levels of exercise, consumed healthier food with lower calories, walked more steps, and slept for longer times on a daily basis. They also were more likely to substitute offline visits with telehealth. A comparison of mobile vs. PC enabled version of the same app demonstrates that the mobile has a stronger effect than PCs in helping patients make these behavioral modifications with respect to diet, exercise, and lifestyle, which ultimately leads to an improvement in their healthcare outcomes. We also compared outcomes when the platform facilitates personalized health reminders to patients vis-à-vis generic (nonpersonalized) reminders. Surprisingly, we found that personalized mobile messages with patient-specific guidance can have an inadvertent (smaller) effect on patient app engagement and lifestyle changes, leading to a lower health improvement. However, they are more like to encourage a substitution of offline visits by telehealth. Overall, our findings indicate the massive potential of mHealth technologies and platform design in achieving better healthcare outcomes.

Keywords: mHealth, mobile app, healthcare platform, chronic disease, diabetes, personalization, patient self-management