

Impact of Digitalization Technology on Improving Patients' Adherence to Medications

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ABSTRACT

BACKGROUND

Clinical pharmacist has a fundamental role in improving patients' adherence to chronic medications, and that has a distinct and significant impact in improving health outcomes. This impact is maximized when patients receive continuous interventions to minimize the lack of adherence sustainability, and this could be achieved by using smart devices.

OBJECTIVE

Our study aimed to improve medication adherence in heart failure patients using the benefits of digital technology to promote a medication adherence app (MediCoach KSA) that is freely available on Apple's App Store and the Google Play Store in Saudi Arabia. MediCoach KSA app is providing a timely reminder for medications daily doses that requires a user confirmation at each time and at the same time providing HCPs with monthly tracking reports that can be easily analyzed to monitor improvement in adherence level.

METHODS

This is a medication adherence and service evaluation study, conducted in a single primary care cardiac center located in Riyadh, Saudi Arabia and including subjects in a single-arm prospective design. 79 patients with chronic HF that were taking 3-15 medications as part of their treatment plans. Patients who identified with low to moderate adherence levels (≥ 2 on MMAS-4) and who had smartphones were included. Participants were offered 30-minute counselling sessions at study start-up, followed by collecting adherence tracking reports from the MediCoach KSA app at one, two and six months. Medication adherence was assessed

for three main drug classes: diuretics, ACE inhibitors/ARBs and β -blockers. Medication adherence was assessed and compared statistically for the three pooled medication classes (overall medication adherence) and each class separately at one, two and six months.

RESULTS

79 patients (mean age 57, 46.8% male, 46% with MMAS-4 score 2) were included in the per-protocol report. Overall medication adherence for patients was 75.8% (90% CI: 74.9 to 76.6) at 1 month, 81.3% (90% CI: 80.3 to 83.4) at 2 months and 83.4% (90% CI: 82.6 to 84.2) after 6 months/study end. Overall adherence level was significantly improved at study end compared with 1 month and 2 months, and also between 1 month and 2 months, with $p < 0.001$, $p = 0.003$ and $p < 0.001$, respectively. Medication adherence for diuretics, ACE inhibitors/ARBs and β -blockers after 6 months (at study end) was 80.6%, 82.3% and 87.3%, respectively, in comparison with 77.4%, 76.4% and 73.5% after one month, and 77.6%, 82.4% and 84.0% after two months.

CONCLUSION

This study provides evidence that the freely available MediCoach KSA app can potentially improve medication adherence in HF patients with minimal cost to the Saudi healthcare system. After six months of continuous use of the MediCoach app, medication adherence levels significantly improved for the three studied medications and each class separately compared with reported levels after one month.

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