Saudi Arabia is among one of the global communities primary countries that has a very high prevalence of diabetes and hypertension, with prevalence rates of almost 18% and 25%, respectively. The majority of patients with diabetes and hypertension fail to manage their diseases and to show up for their follow up appointments. Mhealth technology is among the interventions that have been recently adopted to overcome these issues and improve the quality of healthcare services. This study aims to evaluate the effectiveness of a mobile phone application named diabetes and hypertension application (DHA Tracking) to promote adherence for patients with diabetes and hypertension in Mecca, Saudi Arabia. The proposed intervention was designed to promote adherence utilizing two features namely refill medication reminder (RMR), and doctor appointment reminder (DAR). The third feature which is managing the number of unnecessary visits was covered by cumulative blood sugar test (Hemoglobin A1c) for patients with their doctors. The study examined the difference in adherence level before the intervention and after the intervention with samples of n = 199 and n = 165 for diabetes and hypertension, respectively. The mhealth intervention was found to have significant effects on both the refill medication reminder and the doctor appointment reminder. The research also revealed outcomes that demonstrate that this methodology is effective in reducing the number of unnecessary follow-up visits by approximately 20%. Regarding broader impact of the research, the potential societal impact is the improvement of the quality of life for patients, their family, and the community.

Major: Industrial Engineering

Educational Career:
Bachelor's of Electrical Engineering, BA, 2003, Umm Al-Qura University
Master's of Industrial Engineering, MS, 2013, University of Central Florida

Committee in Charge:
Pamela McCauley, Chair, Industrial Engineering & Management Systems
Gene Lee, Industrial Engineering & Management Systems
Ahmad Elshennawy, Industrial Engineering & Management Systems
Nancy Cummings, Led 2 Serve

Approved for distribution by Pamela McCauley, Committee Chair, on September 20, 2018.

The public is welcome to attend.