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Avatar-based smartphone application as a heart failure education strategy: A feasibility study

Anne-Marie Uebbing
Mount Saint Mary College, USA

Purpose: Managing heart failure (HF) is a challenging clinical priority. Poorly managed HF results in frequent, costly and protracted recurrent hospital admissions. The Institute of Medicine's Report, (2010) and the Centers for Medicaid and Medicare guidelines have demanded that effective measures be taken to reduce this costly health dilemma. Innovative strategy tools for HF patient education thus far have not included the use of avatar media in smartphone application. Avatars have served as virtual 3 –dimensional replicas of patients and patient coaches for other health conditions' management Smartphone-based applications. This feasibility study will examine the potential benefits of this strategy on self-care as it correlates to improvement in maintaining a health regimen that results in a reduction in HF hospital acute care admissions. The ultimate objective is to support improved community-based patient health outcomes.

Methods: Two cohorts of patient participants between the ages of 18 and 65 years with a diagnosis of Stage II HF will be recruited and randomly assigned during Day 1 of hospital admission to either the intervention group or the standard care group. Participants in both groups will receive face-to face HF education and assessed daily following a 25 minute patient education teach-back method beginning on day 2 of hospital admission (patient health-status permitting). Upon discharge both cohorts will be followed weekly for 30 days. The intervention group will be monitored daily via Smartphone avatar-based prompts and patient-driven agenda (targeting medication adherence, exercise and diet regimen, emotional/moral wellbeing, and patient reported biometrics (daily wireless morning weight and blood pressure, readings as well as medication, activity and daily journal app data). The intervention group data will be monitored at 24 hours, 72 hours post discharge and, subsequently, weekly by a dedicated HF nurse. Data from both sources will be stored on a HF unit database. Both participant groups will be assessed weekly for reduction in acute illness and hospital readmission and adherence to HF regimen and self-care goals until the 30 day endpoint of the study. Validity tools will include Motivational Interviewing and the Dutch Heart Failure Knowledge Scale. Clinical partner: HF Unit in a tertiary care hospital in New York's Hudson Valley region.

Results: Anticipated results should demonstrate improved clinical outcomes as specified in the methods section for the intervention group participants as compared to the control group. Close daily interaction of the patient receiving frequent individualized avatar-based Smartphone intervention that includes an assessment of biometric and self-management skills should aid in the application and reinforcement of self-care skills thus increasing participants' likelihood to curtail or reduce acute care hospitalization.

Implications for Clinical Practice: This feasibility study seeks to investigate a new patient teaching strategy to improve HF clinical outcomes thus supporting clinicians who are challenged to address how to balance the increasing demands of higher acuity patients. It is hoped that this avatar-based Smartphone application will engage patients to take greater control of their health management thus improving self-health management and reducing the re-entry of patients to acute care settings. If clinical outcomes demonstrate improved efficacy this intervention should be further tested in multiple clinical settings and applied to other health conditions.

Biography:

Professor Uebbing is a practicing board-certified Family Nurse Practitioner - Internal Medicine, with a specialty focus in pulmonary care. Professor Uebbing previously taught as an adjunct at New York University and Pace University before relocating to the Hudson Valley.

Anne-Marie.Uebbing@msmc.edu