

# Evaluation of Technology Acceptance and Self-Care Behaviors Among Patients Using Standardized Text-Messages or Phone-Based Interventions

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## Introduction & Background

### Introduction

- Heart failure (HF) is the leading cause of hospital readmissions in the US
- Post-discharge readmission and mortality rates remain unchanged for the past 20 years
- mHealth technology can have a large impact on chronic disease management due to popularity, availability, portability, and technological advances of mobile devices

### Background

- 26 million cases of HF worldwide, total medical cost estimated to increase by \$32 Billion
- mHealth technology-assisted monitoring and education can reduce HF exacerbation and readmission by 30%
- The American Heart Association states that monitoring weights is the cornerstone of HF self-management (14% report weighing themselves, while 9% reported monitoring for changes in symptoms)
- Nurse Navigator Check-In Service (NNCIS) is a two-way automated text-message or phone-based service
  - Shortens feedback loops to notify providers of events at home and allows increased low-risk patient engagement
- Patient's intention to use the service and its efficacy has not been evaluated

## Purpose & Aims

The purpose of this project is to evaluate the intention to use mHealth and self-care behaviors among outpatient patients with heart failure who opt to use the Nurse Navigator Check-In Service.

The aims of this human subjects research project were to

- examine intent to use NNCIS among patients with HF using the Technology Acceptance Model
- compare pre- and post- European Heart Failure Self-care Behavior Scale (EHFScBS) scores to look for improved self-care behaviors among patients who use the NNCIS

## Methods

**Design:** This human subject research project used observational study, and a single pre-intervention survey as well as pre- and post intervention surveys

**Setting:** a suburban outpatient cardiology clinic in Northern Virginia

### Measures:

- Technology Acceptance Model (Chuttur, 2009)
  - 12-item adapted survey examining intent to use, perceived ease of use, perceived usefulness, and social factors influencing NNCIS use
- European Heart Failure Self-care Behavior Scale (Østergaard, Mahrer-Imhof, Lauridsen, & Wagner, 2017)
- A reliable and validated 9-item survey based on international HF management guidelines

### Inclusion criteria

- Patients with HF diagnosis, >18 years and <90 years of age, must have texting or calling capabilities on their personal cellular devices, cognitively intact, and literate in English.

### Sample:

- A convenience sample of five voluntary patients with HF

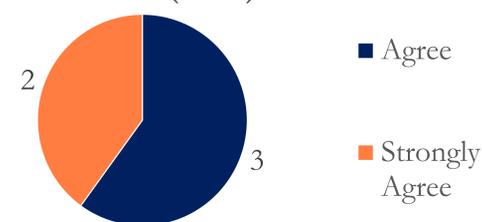
## Results

### Sample Characteristics of Patients with Heart Failure

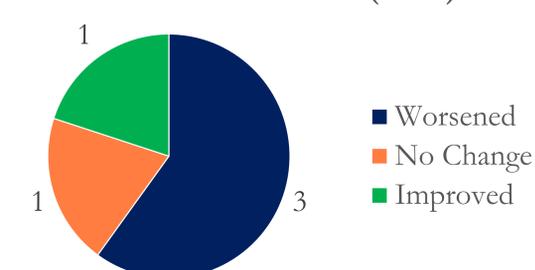
Demographic characteristics	(N = 5)
Age range, n(%)	
51-65 years	2 (40)
66-80 years	3 (60)
Gender identity, n(%)	
Female	2 (40)
Male	3 (60)
Years treated for heart failure, n(%)	
0-2 years	3 (60)
6-10 years	1 (20)
10+ years	1 (20)

- Of the 5 enrolled adult patients with heart failure, 60% were male, 60% were treated for heart failure for 0-2 years, and ages ranged from 51-80 years
- All 5 patients received the mHealth intervention and completed all surveys
- Descriptive statistics was used for analysis of aims 1 & 2
- All patients reported intending to use NNCIS to manage their heart failure
- Most patients' scores did not improve after using the NNCIS

**Aim 1: TAM**  
Survey Question: "I intend to use the NNCIS to manage my HF" (n = 5)



**Aim 2: Difference in Pre- and Post- EHFScBS Scores (n = 5)**



## Conclusion

- The findings were consistent with what the organization has been experiencing with this mHealth tool
- It is promising that patients believe mHealth can help them make managing their HF easier and that they intend on incorporating mHealth platforms into their at-home chronic disease care
- However, other mHealth platforms should be trialed to optimize patient self-care compliance and usability

## Dissemination

Results of this project were shared with the nurse navigator and healthcare system facility coordinator. Copies of the validated tools, the adapted technology acceptance model and the European heart failure self-care behavior scale, were left with the nurse navigator to use with future patients. There are plans to present these findings at the hospital system's annual Evidence-Based Practice Symposium.

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