Acceptance of Older Adults to Use mHealth Equipment for Heart Failure Management

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Purpose

- This study aimed to compare perspectives of older adults with HF who were randomized to either:
  (1) mHealth equipment connected to a 24-hour call center,
  (2) digital home equipment,
  (3) standard care,
with regard to ease & satisfaction with equipment, provider communication & engagement, ability to self-monitor & manage their disease.
Methods

- We performed a pilot study using a mixed-methods descriptive design with pre/post-surveys, following HF patients 12 weeks.
- We augmented these data with semi-structured qualitative interviews to learn more about feasibility, satisfaction, communication, and self-management.
- Remote Patient Monitoring in Homes
  - Weight Scales
  - BP, HR measures
  - Connected via tablet
  - 24 hour Call Center
High-Risk, High-Need Participants

- Recruited from 2 cardiology clinics
- N=28 patients with HF aged ≥55 years
- 57% male, 79% non-Hispanic white
- Multiple comorbid conditions
- 50% rated health fair or poor
- 36% very often/always frustrated & discouraged by their health
- 50% did not monitor weight
- 30% did not monitor BP
- 68% did not monitor for symptoms
Results: Post Intervention

- Daily Monitoring Adherence for BP & weight
  - 100% of equipment groups were monitoring their BP & weight daily (50% increase in adherence from baseline)
  - 67% of standard care (SC) at baseline compared to 22% post
  - HE Logs: Out of range 123 times (may have needed provider intervention)

- Discouragement/Frustration
  - Only the mHealth group trended toward change with 43% reporting discouragement at baseline and 0% post intervention
Results: Post Intervention

- **Technology & Equipment Usability**
  - 36% & 32% indicated technology made them nervous & fearful without significant change post
  - Post equipment usability rating scale: mHealth 84/100 & HE 96/100
  - 93% agreed equipment was easy enough to use on a daily basis

- Equipment problems reported (weekly) 23% (44/177); equal number of problems reported with mH compared to HE
Provider visits (self-reported)

- Provider visits (n=25)
  - 79 in 12 weeks
  - 7 visits to ED
Results: Call Center Data

- 872 total mH readings
- 85.15% adherence rate
- 50 triggered alerts
  - However, most were to 1 participant who had multiple alerts for BP that clinical team were treating
- Call center: 89% accurate (triage, alerts, contacts, medical team calls)
Qualitative Results: 4 Key Themes (n=21)

- **Theme 1: Traditional Communication & Engagement with HC Providers**
  - Satisfied with established methods
  - Health system problems (access)
  - Provider Communication Poor
  - ED visits routine

“Well, before I would just go along and never think of my health until they threw me in an ambulance and took me away.” (mH)
Theme 2: Home Monitoring With Technology

- Helpful
- Problematic
- Watching over me

“Get data in real time, that would be great! The easier you can make that, I think it would give the patient more information to know if they are in trouble or if they have a new problem or something. I think that’s the future.” (HE)

“Well that was good, knowing that somebody was there, watching over it, who actually knew something about medicine. It was kind of a plus.” (mH)
Theme 3: Patient awareness of the importance of self-monitoring and management

- Symptom surveillance
- Becoming a routine practice

“The equipment helps... you know if you gained weight overnight you know to take Lasix. If I’m about 4 or 5 lbs. over, I take a little more Lasix.” [HE]

“... it gets you used to monitoring yourself and then you start realizing just what it means when you see the numbers off...never did realize before how much difference it made.” [HE]
Theme 4: Persistent Health Problems

- Uncertainty & Frustration

People don’t understand how it feels, that I couldn’t even bend over to tie my shoes. I would have to stop trying and take a breath.
Conclusions

- mHealth technology feasible (ease, satisfaction) with older adults w HF
- Increased knowledge and skills related to self-care
- Decreased distress, frustration, uncertainty in mH group
- Problems remain with access to care--relied on ED
- Daily readings & Call Center acceptable to participants & providers
- Potential to improve patient-centered outcomes & self-management in older adults with HF.