Feasibility study of a nurse-led heart failure standardized education program to reduce 30-day readmission

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Objectives

By the end of this session the learner will be able to:
1. Recognize three concepts of self-care behaviors related to heart failure
2. Describe three key concepts related to knowledge of heart failure
3. Identify two evidence-based instruments that can be used to quantify self-care and knowledge of heart failure
4. Recognize three factors that contribute to readmission
Background

• Globally-23 Million people live with heart failure (HF)
• National-5.8 Million people live with HF
• Annually >550,000 people are diagnosed
• 50% of patients with HF die within 5 year from initial diagnosis
• Annually-$32 billion is spent to treat HF-related conditions
30-days post-hospitalization- most vulnerable period for HF patients

Patient’s knowledge level and recognition of HF symptoms influences self-care behavior

Knowledge deficit and poor self care contributes to readmissions

Nurses knowledge and comfort level with educating patients affects the quality of patient education

Albert et al. (2012); Dharmarjan et al.(2012); Paul & Hice (2014); Yancy et al. (2013)
To implement a standardized heart failure patient education program and evaluate its impact on knowledge, self-care and all cause 30-day readmission for individuals with heart failure.
Aims

1. To improve patients’ knowledge of heart failure
2. To improve self-care behaviors among patients with heart failure
3. To reduce all-cause 30-day re-admission
4. To evaluate nurses confidence in using Teach-back method during patient education
Methods

• Design: Quasi-experimental
• Setting: Two inpatient cardiovascular units at a large urban academic medical center
• Sample: A convenient sample of patients primary and secondary diagnosis of HF
Intervention

• Teach-back Method instruction provided to nurses prior to implementing patient education

• Nurse-led education as recommended by the AHA and ACC encompassing:
  - medication adherence
  - daily weight monitoring
  - diet and fluid restriction
  - Symptom monitoring/management
Dutch Heart Failure Knowledge Scale (DHFKS)

- Quantitative instrument
- 15-item questionnaire
- Score: 0-15, (0 = no knowledge, 15= optimum knowledge)
- Reliability and construct validity reported by scale author

Van der Wal et al. (2005)
Self-Care Heart Failure Index (SCHFI)

- 22-item questionnaire
- Self-care maintenance ($\alpha = .553$)
- Self-care management ($\alpha = .597$)
- Self-care confidence ($\alpha = .827$)
- Subscale scores, standardized from 0-100
- Reliability and construct validity reported by scale author

Conviction and Confidence Scale

- 4 questions measuring nurses’ confidence, conviction, and ease of using teach-back method

- Score: 0-10 (0=low, 10= high)

Agency for Healthcare Research and Quality (2015)
Study Flow Chart

Number of Participants screened for eligibility (n=47)

- Excluded (n=18)
  - n=4 discharged to rehabilitation
  - n=5 declined to participate
  - n=2 Spanish speaking
  - n=2 Residence of Nursing home
  - n=5 Documented cognitive

Number of participants with base line data (n=29)

- Attrition n=10
  - Expired n=2
  - Lost home unable to continue with study n=1
  - Lost to follow-up n=2
  - Transferred to a nursing home n=1
  - Unable to answer questions during follow-up n=1
  - Discharge destination changed to rehabilitation center n=1
  - Asked to be taken off =2

Data completed 7-day DHFKS n=19
SCHFI n=19

Data completed 30-day SCHFI n=18

Data completed 90-days DHFKS n=16

Figure 1 Study Diagram
### Table 1. Demographic Characteristics

<table>
<thead>
<tr>
<th>Demographic (N=29)</th>
<th>Frequency/%/Mean/SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N=29</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>66 (11.5) 47-90</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>15 (51.7)</td>
</tr>
<tr>
<td>Females</td>
<td>14 (48.3)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>10 (34.5)</td>
</tr>
<tr>
<td>African-American</td>
<td>18 (62.1)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1 (3.4)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>7 (24.1)</td>
</tr>
<tr>
<td>Not-married (single, divorced, widowed)</td>
<td>22 (75.9)</td>
</tr>
<tr>
<td><strong>Work</strong></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>11 (37.9)</td>
</tr>
<tr>
<td>Unemployed, retired, disability</td>
<td>18 (62.1)</td>
</tr>
<tr>
<td><strong>NYHA</strong></td>
<td></td>
</tr>
<tr>
<td>Class I</td>
<td>5 (17.2)</td>
</tr>
<tr>
<td>Class II</td>
<td>4 (13.8)</td>
</tr>
<tr>
<td>Class III</td>
<td>8 (27.6)</td>
</tr>
<tr>
<td>Class IV</td>
<td>12 (41.4)</td>
</tr>
<tr>
<td><strong>Ejection Fraction</strong></td>
<td></td>
</tr>
<tr>
<td>≥55%</td>
<td>11 (37.9)</td>
</tr>
<tr>
<td>&lt;55%</td>
<td>18 (62.1)</td>
</tr>
</tbody>
</table>

SD= Standard Deviation; NYHA= New York Heart Association
To improve patients knowledge level about heart failure

<table>
<thead>
<tr>
<th>DHFKS</th>
<th>Total Sample</th>
<th>N=19</th>
<th>N=16</th>
<th>T0 to T1 P</th>
<th>T0 to T2 P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T0 (Baseline)</td>
<td>T1 (7 days)</td>
<td>T2 (90 days)</td>
<td>.001**</td>
<td>.032**</td>
</tr>
<tr>
<td></td>
<td>11.965 (1.76)</td>
<td>13.32 (2.08)</td>
<td>13.31 (1.29)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Dutch Heart Failure Knowledge Scale data collected at baseline, 7 and 90-days after discharge

*P value <.05 is considered statistically significant. ** Statistically significant. Paired t-test used to calculate significance.*
To improve self-care among patients with heart failure

<table>
<thead>
<tr>
<th>SCHFI Scores</th>
<th>T0 (Baseline) N=29</th>
<th>T1 (7-days) N=19</th>
<th>T2 (30-days) N=18</th>
<th>T0 to T1 P</th>
<th>T0 to T2 P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCHFI Maintenance, Mean (SD)</td>
<td>64.59 (17.76)</td>
<td>85.43 (10.32)</td>
<td>89.07 (8.39)</td>
<td><strong>.000</strong></td>
<td><strong>.000</strong></td>
</tr>
<tr>
<td>SCHFI Management, Mean (SD)</td>
<td>55.86 (15.64)</td>
<td>78.68 (17.15)</td>
<td>76.50 (17.01)</td>
<td><strong>.001</strong></td>
<td><strong>.013</strong></td>
</tr>
<tr>
<td>SCHFI Confidence, Mean (SD)</td>
<td>71.61 (16.62)</td>
<td>77.84 (17.48)</td>
<td>86.18 (14.18)</td>
<td>.169</td>
<td><strong>.017</strong></td>
</tr>
</tbody>
</table>

Table 3. Self-care Heart Failure Index Score collected at baseline, 7 and 30-days after discharge.

*P* value <.05 is considered statistically significant. **Statistically significant. Paired t-test used to calculate significance.
To reduce all cause 30-day re-admission

<table>
<thead>
<tr>
<th>30-day Readmission</th>
<th>Participants n=29</th>
<th>GTU n=490</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-cause n (%)</td>
<td>5 (17)</td>
<td>62 (13)</td>
<td>P=.53</td>
</tr>
<tr>
<td>Primary DX of HF n (%)</td>
<td>2 (7)</td>
<td>12 (2.4)</td>
<td>P=.19</td>
</tr>
</tbody>
</table>

Table 4. GTU readmission rate for September 2015 to February 2016 compared to current data

Chi-Square used to calculate significance. P<.05 indicates significance
To evaluate nurses confidence with Teach-Back

<table>
<thead>
<tr>
<th>N=23</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>How convinced are you that it is important to use teach-back method</td>
<td>9.39</td>
<td>0.89</td>
</tr>
<tr>
<td>How confident are you in your ability to use teach-back</td>
<td>7.52</td>
<td>1.78</td>
</tr>
</tbody>
</table>

SD= Standard deviation. Scale 0-10, 0= not convinced, not confident. 10= very convinced, very confident.

<table>
<thead>
<tr>
<th>How often do you ask patient to explain back in their own words</th>
<th>N=23</th>
<th>Response (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not do it now, but plan to do this in the next month</td>
<td>21.7</td>
<td></td>
</tr>
<tr>
<td>I have been doing this for less than 6 months</td>
<td>30.4</td>
<td></td>
</tr>
<tr>
<td>I have been doing this for 6 months or more</td>
<td>39.1</td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Percent (%) of nurses who use teach-back method during patient education.
Limitations

- Small, non-random sample
- Quasi-experimental design with no randomized control group
- High attrition rate
- Single site study
- Short term study
- Study not generalizable
Similar to previous studies, this study highlights:

• Standardized nurse-led heart failure education had a positive outcome.
• Education focused on knowledge & self-care improves knowledge and self-care behaviors
• Nurses play a key role in patient education
Conclusions

• HF is a common condition with high symptom burden
• HF education should be standardized following by AHA/ACC guidelines
• Further investigation is necessary to identify gaps in practice that may contribute to all-cause readmissions
doi:http://dx.doi.org/10.1590/S0066-782X2011005000014
14. Hospital Compare/ Medicare.Gov
https://www.medicare.gov/hospitalcompare/compare.html#vwgrph=1&cmprTab=4&cmprID=090004%2C090001&cmprDist=3.5%2C3.9&dist=25&loc=20008&lat=38.9451658&lng=-77.0622028


