Self-Care Behaviors of Women Living with Heart Failure: A Mixed Methods Study

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Introduction

- Cardiovascular disease is the leading cause in global mortality
- United States: 1/7 individuals
  - 1/5 develop Heart Failure
Women and Heart Disease

• Nearly half (47%) of individuals diagnosed with heart failure are female.
  • Females are generally older at the time of first diagnosis, have higher rates of depression and a higher mortality rate than males (57.8% vs. 42.2%).

• Females are highly underrepresented in large scale clinical trials accounting for approximately 25% of study participants.
Self-Care and Chronic Disease

- Self-care behaviors are at the foundation of heart failure management.
- Decreases hospitalization rates and improves overall quality of life.
- Self-Care is effected by physiological and psychological factors

<table>
<thead>
<tr>
<th>Physiological</th>
<th>Psychological</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive impairment</td>
<td>Depression</td>
</tr>
<tr>
<td>Functional status</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Co-morbid conditions</td>
<td>Social Support</td>
</tr>
<tr>
<td>Polypharmacy</td>
<td>Emotional Distress*</td>
</tr>
<tr>
<td>Fatigue*</td>
<td>Previous negative experiences*</td>
</tr>
</tbody>
</table>

*Greater effect on females*
Theoretical Framework: Situation Specific Theory of Heart Failure Self-Care

- Aims to link clinical practice, research, and theory

Self-Care of Heart Failure Model

- Stage 1: Symptom monitoring and treatment adherence
- Stage 2: Symptom Recognition
- Stage 3: Symptom Evaluation
- Stage 4: Treatment Implementation
- Stage 5: Treatment Evaluation

Self-care Maintenance
Self-care Management

Self-care Confidence
Theoretical Framework:
Situation Specific Theory of Heart Failure Self-Care

- Aims to link clinical practice, research, and theory

- Naturalistic Decision Making (NDM)
Self-Care of Heart Failure Index (SCHFI)

- 3 subscales: Maintenance, Management, Confidence
- 22 item, Likert style questionnaire.
- Coefficients for each subscale:
  - Maintenance: 0.55
  - Management: 0.59
  - Confidence: 0.82
- Confirmatory factor analysis (2009)
- Structural equation modeling (2013)
- Tested in multiple countries including: Italy, Brazil, Taiwan
- Translated into multiple languages including: Spanish, Dutch, Portuguese, Japanese, Persian, Slovakian, Lithuanian, Albanian, and French.
SCHFI – Maintenance Scale

Listed below are common instructions given to persons with heart failure. How routinely do you do the following?

<table>
<thead>
<tr>
<th></th>
<th>Never or rarely</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Always or daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Weigh yourself?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Check your ankles for swelling?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Try to avoid getting sick (e.g., flu shot, avoid ill people)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Do some physical activity?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Keep doctor or nurse appointments?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Eat a low salt diet?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Exercise for 30 minutes?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Forget to take one of your medicines?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Ask for low salt items when eating out or visiting others?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Use a system (pill box, reminders) to help you remember your medicines?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
### SCHFI - Confidence Scale

In general, how confident are you that you can:

<table>
<thead>
<tr>
<th></th>
<th>Not Confident</th>
<th>Somewhat Confident</th>
<th>Very Confident</th>
<th>Extremely Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. Keep yourself <strong>free of heart failure symptoms</strong>?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. <strong>Follow the treatment advice</strong> you have been given?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. <strong>Evaluate the importance</strong> of your symptoms?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. <strong>Recognize changes</strong> in your health if they occur?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21. <strong>Do something</strong> that will relieve your symptoms?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. <strong>Evaluate</strong> how well a remedy works?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Purpose of the Study

- This study aimed to explore and identify new factors affecting women with heart failure, therefore, a mixed methods approach to encompass both quantitative and qualitative data was warranted.

- The primary aim of the study was to identify key differences in women who displayed an adequate ($\geq 70$) level of heart failure self-care maintenance behaviors as compared with women who scored inadequately ($\leq 69$) on the Self-Care of Heart Failure Index (SCHFI) version 6.2.
Research Questions

- **Quantitative**
  - What is the distribution of self-care maintenance scores in women with heart failure?
  - Is there a relationship between adequate and inadequate scores of heart failure self-care maintenance and adequate and inadequate scores in heart failure self-care confidence?

- **Qualitative**
  - What are the different factors that can be identified which facilitate or impede heart failure self-care behaviors in women scoring adequately and inadequately on the SCHFI?
  - What are the motivating factors that influence heart failure self-care behaviors in women who score adequately and inadequately on the SCHFI?

- **Mixed Methods**
  - In what ways do the interview data that investigate self-care in women with heart failure help to explain the quantitative results about self-care maintenance and the influence of self-care confidence in both those scoring adequately and inadequately as reported on the SCHFI?
Significance and Novelty

**Significance**

- Self-care maintenance is at the foundation of self-care.
- Little is known about self-care maintenance independent of other aspects of heart failure self-care.
- Women are historically underrepresented in research studies.
- Self-care maintenance is a precursor to symptom perception and self-care management.

**Novelty**

- First study to exclusively focus on heart failure self-care maintenance in women using a convergent mixed methods design.
- Previous studies have included both genders and included all aspects of heart failure self-care.
- Lower percentage of women than men.
Review of the Literature

- Years: 1990 – August 2016
- Key words: heart failure, women, female, gender differences, quantitative, qualitative, mixed methods, and self-care.
Heart Failure Self-Care: Notable Quantitative Studies

- Typologies of Heart Failure (Riegel et al., 2011)
  - Novice – low self-care confidence
  - Experts- High self-care confidence
  - Inconsistent – Few limitations in activity with high levels of confidence
- Social support influences heart failure self-care behaviors (Cené, 2013; Graven et al., 2015)
- Women tend to have lower self-care maintenance scores than men and a gender specific approach to improving heart failure self-care is needed (Stamp, 2014).
Heart Failure Self-Care: Notable Qualitative Studies

- Gender influences heart failure self-care through overwhelming physical limitations, changes to social and gender roles, and the importance of social support (Thomas & Clark, 2011).
- Women tend to seek guidance and advice from family, friends, and health care providers (Riegel, et al., 2010).
- Involvement of caregivers, financial capacity, and lifestyle changes also influence heart failure self-care (Strachan, et al., 2014).
  - Women tend to support others, rather than be supported.
Heart Failure Self-Care: Notable Mixed Methods Studies

- Expertise in heart failure: poor, good, or expert (Riegel, et al., 2007).
  - Classification based on qualitative interviews
  - Experts showed evidence of being “active” in their self-care behaviors.
- Individuals with heart failure assume an active or passive role in their self-care behaviors (Dickson, et al., 2011).
Methods

- Convergent, mixed methods design (Creswell, 2015).

**Research Problem:**
Poor HF Self-Care in women with HF

**Setting:**
Primary care clinic in southwestern CT.

**Interpretation:**
How SCHFI data explains Qualitative themes

**Merge the data**
Role of Confidence

**Qualitative Data Collection and Analysis**

**Quantitative Data Collection and Analysis**
Study Procedures for Data Collection

- Data collection occurred from January 2015 to April 2016.
  - Informed consent
  - SCHFI
  - Demographic Survey
  - Qualitative Interview (Audio Recorded)
    - Participants scoring $\geq 70$ were considered “Adequate”
    - Participants scoring $\leq 69$ were considered “Inadequate”
- Data were collected either in person ($n=11$) or via telephone ($n=20$).
  - All consenting participants completed the SCHFI and Demographics survey
    - 24 participants completed the qualitative interview
Study Procedures for Data Analysis

• Quantitative:
  • Descriptive statistics – means, standard deviations
  • Correlations
  • Quadratic Regression

• Qualitative:
  • Content analysis (Krippendorf, 2013)

• Mixed Methods:
  • Side-by-side comparison of quantitative and qualitative data
Results – Quantitative

- N = 31
  - Adequate (n = 11)
  - Inadequate (n = 20)
  - Mean age = 57.9
    - Sample was predominantly:
      - Black (77%)
      - Unwed (86%)
      - Had a high school level education (74%)
      - Lived with someone else (68%)
      - Unemployed (77%)
## Split Demographic Profile

<table>
<thead>
<tr>
<th></th>
<th>Adequate ($\geq 70$) (N)</th>
<th>Inadequate ($\leq 69$) (N)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>57.7</td>
<td>58.1</td>
<td>.58</td>
</tr>
<tr>
<td>Years with HF</td>
<td>5.3</td>
<td>5.4</td>
<td>.66</td>
</tr>
<tr>
<td>Race – Black</td>
<td>8</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>10</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Unwed</td>
<td>8</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>HS education</td>
<td>8</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Co-Habitant</td>
<td>6</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>
Research Question One

- Means, percentages, and standard deviations
  - Mean value for the self-care maintenance score was 61.1 (±15.5) with a range of 17-87.
  - The majority of the participants in this study (70%, n = 22) scored inadequately as defined by the SCHFI.
Research Question Two

- **Pearson’s correlation:** $r[29] = .19$, $p = .30$
Research Question Two

- Quadratic Regression: $R^2 = 32\%, \ F = 6.4, \ df = 2, 27, \ p = .005$
Research Question Three

Factors that *facilitate* heart failure self-care maintenance behaviors:

**Everyday and Always: The importance of routine and compliancy**

“So what do you want to know? I take my medicine. I keep my appointments. My health is very important to me. I walk every day. I do my exercises. I eat properly. Right? I follow my diet and I see the doctor. I don’t know what else. That pretty much covers everything. [80].

**Strong Connections: Relationships with the Health Care Provider**

“The visiting nurse helps me a lot. She puts my medicine in the box, seven days.” [63]

**In Tune: The certainty of heart failure self-care behaviors**

“We’re making these habits. She [the participant] is very in tune with herself and her body with recognizing the warning signs.” [67].
Research Question Three
Factors that **impede** heart failure self-care maintenance behaviors:

“I don’t seem to have a problem” — Denial and Misunderstanding

“I don’t seem to have a problem.” [47]

“My ankles swell sometimes...I don’t know why that happens.” [47]

It’s very frustrating.” — Changes to Lifestyle

“As being a very active person in the past, I used to walk, I used to run, I used to ski and it’s very frustrating not being able to do anything.” [83]

“I’m juggling a lot right now.” — Managing Co-Morbidities

“I’m juggling a lot right now.” [67]

“I got diabetes too and I’m trying to correct that.” [87]
“I want more time with them” – The influence of friends and family

“My son…I just try to do what I need to do, you know, so that I can live longer and be here for him, you know. He’s only 20, so, you know, I want to see him get married.”

“I’m not ready.”

“I’m not ready to give up! I get by, slowly and maybe not like I used to, but I get by.”

“Life in general keeps me going…My motivation? I just want to be alive.”
Research Question Five

“I’ve been dealing with it for 14 years now so I’m pretty strong.” [57]

“Well, I take my medicine like I’m supposed to,” [57]

“I try to not drink sodas but I guess soda is better than nothing. Is it?” [67]

“My husband, he has high blood pressure, so he has to watch what he’s doing too. We’ve been doing this for some years.” [83]
Discussion

Typologies of Heart Failure (Riegel et al., 2011)

**Novice** – Low self-care confidence

**Experts** - High self-care confidence

**Inconsistent** – Few limitations in activity with high levels of confidence
“I’ve been dealing with it for 14 years now so I’m pretty strong.” [57]

“Well, I take my medicine like I’m supposed to,”[57]

“I try to not drink sodas but I guess soda is better than nothing. Is it?” [67]

“My husband, he has high blood pressure, so he has to watch what he’s doing too. We’ve been doing this for some years.” [83]
## Typology Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Inconsistent</th>
<th>Novice</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N = 5)</td>
<td>(N = 18)</td>
<td>(N = 8)</td>
<td></td>
</tr>
<tr>
<td><strong>Age (mean)</strong></td>
<td>60</td>
<td>57.2</td>
<td>57.9</td>
</tr>
<tr>
<td><strong>Years with HF</strong></td>
<td><strong>3</strong></td>
<td><strong>6.5</strong></td>
<td><strong>4.4</strong></td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>White</strong></td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Black</strong></td>
<td>1</td>
<td><strong>15</strong></td>
<td>5</td>
</tr>
</tbody>
</table>
Implications

Education: Importance of gender specific needs and interventions.

Practice: Nurses as a health promoter for both in and outpatient settings.

Research: RCTs, large sample sizes, deeper understanding of typologies of heart failure and individual patient characteristics.

Policy: Reducing healthcare costs associated with HF hospitalizations.
Conclusion

• Use of the Mixed Methods designed allowed for a deeper understanding of the quantitative SCHFI score.
• Layering of previously discovered typologies and patient characteristics.
• Understanding both positive and negative influences on heart failure self-care.
Thank you!