Breast Cancer Survivors’ Symptoms of Pain, Sleep Disturbance, Fatigue and Anxiety
Ann M. Schreier, PhD, RN

Disclosures & Acknowledgements
• Dr. Schreier has no disclosures
• This research was funded by ECU College of Nursing Office of Research & Creative Activities.
• The Fitbit devices were supplied by the ECU Activity Promotion Laboratory

Learning Objectives
• To describe the incidence of symptoms of pain, fatigue, sleep disturbance and anxiety at completion of initial breast cancer (BC) treatment
• To evaluate the usefulness of objective and subjective measurement of symptoms
• To formulate future research that examines symptom clusters including pain for cancer survivors
Co-Investigators

- Nasreen Vohra, MD ECU Brody School of Medicine, Division of Surgical Oncology
- Brandon Kyle, PhD ECU Brody School of Medicine, Department of Psychiatry & Behavioral Medicine
- Mavish Muzaffar, MD ECU Brody School of Medicine, Department of Internal Medicine
- Matthew Mahar, EdD, ECU, Director of Activity Promotion Laboratory

Purpose

- The purpose of this study was to describe the symptom cluster of pain, sleep disturbance, anxiety and fatigue in a sample of breast cancer survivors

Background

BC second most common cancer dx in women in USA₁
An estimated 231,840 US women will be diagnosed with invasive BC in 2016₂
In one study, women reported an average of 12 symptoms at 6 months post initial therapy₃
Symptom cluster of pain, fatigue, sleep disturbances, and anxiety commonly occurs₄, ₅
**Theory of Unpleasant Symptoms Theory**

- Physiologic Factors
- Psychological Factors
- Situational Factors
- Duration
- Symptoms
- Intensity
- Quality
- Performance

**Setting**

- Leo Jenkins Cancer Center outpatient clinics
- Center serves 29 counties in Eastern North Carolina

**Design**

- Descriptive correlation pilot study
- Convenience sample
Procedure

• Potential subjects identified by BC Nurse Navigator
• Subjects invited to participate at clinic visit
• Informed consent
• Survey Instruments collected via IPAD
• Subject instructed in use of FITBIT & asked to wear for 7 days
• Gift card given upon return of FITBIT

Sample

• 40 Breast Cancer Survivors
• Mean Age- 58 years (Range 43 to 79)
• Surgery type- 60% partial mastectomy
• Breast Cancer Stage- 40% Stage 2
• Race- 57.5% Black, 40% White
• Initial treatment-57.5% radiation & chemotherapy
• Hormone Therapy- 50% currently receiving

Instruments

• Patient-Reported Outcomes Measurement Information System (PROMIS)
• PROMIS SF Pain Intensity (3 items)
• PROMIS SF Pain Interference (6 items)
• PROMIS SF Sleep Disturbance (8 items)
• PROMIS SF Anxiety (7 items)
• Piper Fatigue Scale-12
• FITBIT Flex Activity Tracker
PROMIS Instruments

Pain Intensity Short Form

- In the past 7 days,
  - How intense was your pain?
  - How intense was your average pain?
  - What is your level of pain right now?

  - Scale: Had no pain (1), Mild (2), Moderate (3), Severe (4), Very Severe (5)

Pain Interference

- In the past 7 days,
  - How much did pain interfere with your day to day activities?
  - How much did pain interfere with work around the home?
  - How much did pain interfere with your ability to participate in social activities?
  - How much did pain interfere with household chores?
  - How much did pain interfere with the things you usually do for fun?
  - How much did pain interfere with your enjoyment of social activities?

  - Scale: Not at all (1), A little bit (2), Somewhat (3), Quite a bit (4), Very Much (5)
Emotional Distress-Anxiety

- In the past 7 days
  - I felt fearful
  - I felt anxious
  - I felt worried
  - I found it hard to focus on anything other than my anxiety
  - I felt nervous
  - I felt uneasy
  - I felt tense
    - Scale: Never (1), Rarely (2), Sometimes (3), Often (4), Always (5)

Sleep Disturbance

- In the past 7 days
  - My sleep quality was: Very Poor (5), Poor (4), Fair (3), Good (2) Very good (1)
  - My sleep was refreshing
  - I had a problem with my sleep
  - I had difficulty falling asleep
  - My sleep was restless
  - I tried hard to get to sleep
  - I worried about not being able to fall asleep
  - I was satisfied with my sleep
    - Scale: Not at all (5), A little bit (4), Somewhat (3), Quite a bit (2), Very much (1)

Piper Fatigue Scale

- Cancer Related Fatigue: perception of unusual tiredness
- Reported reliability (r=.92) total score;
- 4 Subscales
  - Behavior (r=.80)
  - Affective (r=.87)
  - Sensory (r=.87)
  - Cognition/ mood (r=.87)
Use of PROMIS Instruments

- Advantages
  - Standardized instruments
  - Applicable for low-literacy population
  - Ability to complete surveys electronically through Assessment Center

- Disadvantages
  - Score reporting structure

Means, Range and Standard Deviation of Symptoms (N=40)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Range</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>Pain Intensity</td>
<td>44.7</td>
<td>30.7-71.8</td>
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<tr>
<td>Pain Interference</td>
<td>54.3</td>
<td>41.1-76.2</td>
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<tr>
<td>Sleep Disturbance</td>
<td>53.9</td>
<td>37.7-74.7</td>
<td>7.6</td>
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<tr>
<td>Anxiety</td>
<td>50.6</td>
<td>36.3-82.4</td>
<td>10.3</td>
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<tr>
<td>Fatigue</td>
<td>3.8</td>
<td>0-9.8</td>
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Mean, Range and Standard Deviation of PRS-12 Subscales

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<th>Subscale</th>
<th>Mean</th>
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<tr>
<td>Cognitive Fatigue</td>
<td>3.75</td>
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<td>3.01</td>
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<tr>
<td>Affective Fatigue</td>
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<td>0-10</td>
<td>3.17</td>
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<td>Behavioral Fatigue</td>
<td>3.9</td>
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<td>3.27</td>
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<td>Sensory Fatigue</td>
<td>4.03</td>
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<td>3.0</td>
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### Summary of Correlations, Means, Standard Deviations for Symptoms and Average Steps per Day (N=40)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>M</th>
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<tbody>
<tr>
<td>1. Pain Intensity</td>
<td>.886**</td>
<td>.292</td>
<td>.442**</td>
<td>.58**</td>
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<td>.53**</td>
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<td>.14**</td>
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<td>-.456**</td>
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<td>53.9</td>
<td>7.6</td>
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<td>4. Anxiety</td>
<td>.587**</td>
<td>-.365*</td>
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<td>10.2</td>
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<td>5. Fatigue</td>
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<td>6. Average Steps/Dayₐ</td>
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<td>5769</td>
<td>3032</td>
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* Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed); ₐN=33

### Women reporting pain (N=25)

- **Location of Pain**
  - Multiple sites 21
  - Muscle aches & joint pain 3
  - Chest 1

### Summary of Correlations, Means and Standard Deviation for Symptoms and Average Steps per Day for Subsample who report Pain (N=25)

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<td>3. Sleep Disturbance</td>
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<td>.433*</td>
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<td>53.32</td>
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<td>4. Anxiety</td>
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<tr>
<td>6. Average Steps/Dayₐ</td>
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<td>5084</td>
<td>3179</td>
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* Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed); ₐN=20
Conclusions

- Symptom experience of BCS highly variable
- Statistically significant moderate positive correlations between pain intensity, sleep disturbance, anxiety and fatigue
- Statistically significant weak negative correlations between activity and symptoms
- For subsample reporting pain, statistically significant moderate to strong positive correlations with sleep disturbance, anxiety and fatigue

Future Research

- Recruit larger sample of BCS (less then one year survivorship)
- Include Stage IV BCS
- Pilot Randomized Clinical Trial of Cognitive Behavioral Therapy for Symptom Management

References