1. Introduction

Affect 75% of women for 7+ years
Felt as sudden rush of heat and perspiration
Impact on quality of life is measured using the Hot Flash Related Daily Interference Scale (HFRDIS)
- 10-item, self-report
- Rate each item from 0 (hot flashes do not interfere) to 10 (completely interfere)
- Total score = mean of all answers
- Strong psychometrics, widely used
- Available in 12 languages

2. What We Wanted to Do

Create a shorter version
- For busy clinical practices
- To decrease response burden
Identify cutpoints
- Mild, moderate, severe interference
- Identify minimally important difference
- To interpret treatment effects

3. Dataset and Sample

Baseline and post-randomization data
Collected July 2009-October 2012
In three MsFLASH trials of hot flash treatments (medications, exercise, yoga, omega-3 fatty acids)
Common inclusion criteria in all trials
Most in their middle 50’s, White or African-American, educated past high school, postmenopausal
Median 6+ hot flashes per day

4. Methods

Confirmatory factor analysis
Eliminated items
- Expert ratings: Items rated by 7 menopause experts as essential, useful but not essential, not necessary
- Women’s responses: Items where large percentages of women marked zero or no interference
- Analyze psychometrics, cutpoints, and minimally important differences by mapping scale to other measures

5. Results

Created 3 item Hot Flash Interference Scale (HFI)
- Single factor scale like HFRDIS
- Strong Cronbach’s alphas (> 0.82) like HFRDIS (> 0.92)
- Strong correlations with other concepts (convergent validity) like HFRDIS – see 5.1
Validated cutpoints for mild, moderate, severe interference – see 5.2
Identified minimally important differences – see 5.3

5.1 Convergent Validity

Table: Correlations of the Two Interference Scales with Related Concepts

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Post-randomization</th>
<th>Baseline</th>
<th>Post-randomization</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFRDIS</td>
<td>1</td>
<td>0.948*</td>
<td>0.907*</td>
<td>1</td>
</tr>
<tr>
<td>HFI</td>
<td>0.907*</td>
<td>1</td>
<td>0.944*</td>
<td>1</td>
</tr>
<tr>
<td>HF frequency</td>
<td>0.175*</td>
<td>0.283*</td>
<td>0.183*</td>
<td>0.259*</td>
</tr>
<tr>
<td>HF severity</td>
<td>0.365*</td>
<td>0.405*</td>
<td>0.383*</td>
<td>0.469*</td>
</tr>
<tr>
<td>HF bother</td>
<td>0.397*</td>
<td>0.456*</td>
<td>0.421*</td>
<td>0.405*</td>
</tr>
<tr>
<td>MENQOL</td>
<td>0.546*</td>
<td>0.581*</td>
<td>0.540*</td>
<td>0.523*</td>
</tr>
</tbody>
</table>

HF = hot flashes, MENQOL = Menopausal Quality of Life

5.2 Cutpoints

0 1 2 3 4 5 6 7 8 9 10
0 to 3.9 4 to 6.9 7 to 10
Moderate Severe

- Significant group differences in:
  - HF frequency, severity and bother
  - Sleep problems and insomnia severity
  - Anxiety
  - As HF interference increased, other symptoms also increased.

5.3 Minimally Important Differences

<table>
<thead>
<tr>
<th>Difference in HF outcomes</th>
<th>HF frequency</th>
<th>HF bother</th>
<th>Sleep problems</th>
<th>Insomnia severity</th>
<th>Anxiety</th>
</tr>
</thead>
</table>

Average of column -1.66 -2.34

HF = hot flashes, MENQOL = Menopausal Quality of Life

6. Conclusions

Two options for assessing hot flash interference – an important aspect of quality of life
- New shorter scale
- New information on original scale
- Useful for interpreting data in already completed studies as well as in future studies
- Recommend replicating analyses in more diverse populations and with different language versions of the scale

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