Effects of CBT for Menopausal Insomnia on Depressive Symptoms

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Insomnia and Depression in Menopause

• 39-60% midlife women suffer from elevated insomnia sx\textsuperscript{1,2}
• 8-40% midlife women suffer from elevated depression sx\textsuperscript{1,3}
• 12% of the general population has comorbid insomnia and depression\textsuperscript{4}
• 44% of patients with comorbid insomnia & depression have residual sleep issues after mood symptoms resolve & increased risk of relapse\textsuperscript{5}
• Comprehensive interventions that simultaneously improve sleep and mood in midlife women are greatly needed

Objective

To preliminarily examine the effects of cognitive behavioral therapy (CBT) for menopausal insomnia on depressive symptoms compared to menopause education control in midlife women

CBT  vs  Control
What is Cognitive Behavioral Therapy (CBT) for Menopausal Insomnia?

Combine CBT for **Insomnia** & CBT for **Hot Flashes**

**Behaviors:**
- A set of instructions for changing behaviors that are incongruent with good sleep or ability to cope with hot flashes

**Cognitions:**
- Address thoughts related to sleep and hot flashes that
  - interfere with good sleep
  - increase hot flash bother
- Reduce suffering (hope, realistic expectation, acceptance)
## CBTMI Components

<table>
<thead>
<tr>
<th>Technique</th>
<th>Aim</th>
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<tbody>
<tr>
<td>Sleep restriction</td>
<td>Restrict time in bed to improve sleep depth &amp; consolidation</td>
</tr>
<tr>
<td>Stimulus control</td>
<td>In bed only when asleep to strengthen bed/bedroom as sleep stimulus</td>
</tr>
<tr>
<td>Cognitive therapy</td>
<td>Address maladaptive beliefs about sleep &amp; hot flashes</td>
</tr>
<tr>
<td>Sleep hygiene &amp; Hot flash coping</td>
<td>Promote habits that help sleep &amp; hot flashes eliminate bad habits &amp; hot flash triggers</td>
</tr>
<tr>
<td>Relaxation training</td>
<td>Reduce physical/psychological arousal</td>
</tr>
</tbody>
</table>
Menopause Education Control (MEC)

• A single 50-minute session
  • Introduced as self-help intervention
  • Educational handouts

• Discuss menopausal symptoms & sleep hygiene
Procedures

Study duration = 20 weeks

*PSG = polysomnography
S = session
Measures

**Center for Epidemiologic Studies Depression Scale (CES-D)**
- 20-item *self-report* measure of depressive symptoms
- $16 = \text{used as cut-off for high vs low depression}$

**Hamilton Depression Rating Scale (HDRS)**
- 24-item *objective* clinical rating of depressive symptoms
- $8 = \text{used as cut-off for high vs low depression}$

**Insomnia Severity Index (ISI)**
- 7 item validated self-report scale to assess insomnia
- $\geq 10 = \text{detect insomnia}$
- $-8.4 \text{ point change score} = \text{moderate improvement}$
Inclusion-Exclusion Criteria

Inclusion criteria
• peri/post women; (STRAW +10 criteria)
• Insomnia Disorder (DSM-IV )
• ISI>10 or PSQI>8
• ≥ 1 nocturnal hot flash/night

Exclusion criteria
• Surgical or chemotherapy/radiation-induced menopause
• Cognitive impairment
• Psychotic disorder, substance use disorder, bipolar disorder
• Recent initiation/change in treatments that may impact sleep or HF
• As needed use of medications or herbs that may affect sleep or HF
• Comorbid sleep disorders [PLMI > 15; OSA (AHI > 15)]

NOT excluded if comorbid diagnosis of major depression
## Baseline Characteristics (N=40)

<table>
<thead>
<tr>
<th>Measure</th>
<th>CBTMI</th>
<th>MEC</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, M (SD)</td>
<td>53 (5.2)</td>
<td>56 (7.1)</td>
<td>.10</td>
</tr>
<tr>
<td>Race/ethnicity, N (%) nonwhite</td>
<td>12 (63)</td>
<td>5 (25)</td>
<td>.04</td>
</tr>
<tr>
<td>Menopause stage, N (%) peri</td>
<td>6 (30)</td>
<td>8 (40)</td>
<td>.68</td>
</tr>
<tr>
<td>Sleep hot flashes/night (self-report), M (SD)</td>
<td>1.7 (1.2)</td>
<td>1.4 (.4)</td>
<td>.52</td>
</tr>
<tr>
<td>Insomnia Severity Index, M (SD)</td>
<td>15 (3.4)</td>
<td>16 (4.3)</td>
<td>.59</td>
</tr>
<tr>
<td>Center for Epi Studies Depression Scale, M (SD)</td>
<td>16 (9.0)</td>
<td>15 (11.1)</td>
<td>.61</td>
</tr>
<tr>
<td>Hamilton Depression Rating Scale, M (SD)</td>
<td>11 (7.1)</td>
<td>9 (6.0)</td>
<td>.61</td>
</tr>
<tr>
<td>Current Major Depressive Episode, N (%)</td>
<td>3 (15)</td>
<td>1 (5)</td>
<td>.64</td>
</tr>
</tbody>
</table>
Self-Reported Depression (CES-D)

<table>
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<tr>
<th>Effect</th>
<th>P-value</th>
</tr>
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<tbody>
<tr>
<td>Time</td>
<td>0.001</td>
</tr>
<tr>
<td>Treatment Arm</td>
<td>0.009</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.019</td>
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</table>

Error Bars: 95% CI
Clinician-Assessed Depression (HDRS)

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<tr>
<td>Time</td>
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<tr>
<td>Treatment Arm</td>
<td>0.022</td>
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<tr>
<td>Interaction</td>
<td>0.01</td>
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Error Bars: 95% CI
Impact of Baseline Depression on Insomnia Outcome (ISI)

Self-Reported Depression

Clinician-Assessed Depression

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<tr>
<td>Time</td>
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</tr>
<tr>
<td>Condition</td>
<td>0.014</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.951</td>
</tr>
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<td>0.072</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.534</td>
</tr>
</tbody>
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Error Bars: 95% CI
Summary

Treatment Effects on Depressive Outcomes:
- For midlife women experiencing insomnia and hot flashes, CBTMI led to clinically meaningful improvements in self-reported & clinician assessed depression (CES-D, HDRS).

Impact of Baseline Depression on Treatment Response:
- Treatment response for insomnia severity (ISI) did not differ based on baseline depression severity (high vs low).
Clinical Implications

- Cognitive Behavioral Therapy for Menopausal Insomnia has added benefits of improving mood in midlife women.
- CBTMI is equally beneficial to midlife women experiencing more severe depressive symptoms.
- Future research is needed to test the efficacy of CBTMI on midlife women with comorbid diagnoses of depression and insomnia.
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CBT-I Resources

Society of Behavioral Sleep Medicine

SHUTi
Sleep Healthy Using the Internet

Case File

Cores

Tools
Sleep Report

Your Progress
Your goals

Weekly change
All time change

Sleepio
Your average nightly sleep

Time asleep
Hr 97

Time in bed
Hr 97

Sleep efficiency
92%