An integrative cognitive vulnerability model of menopausal hot flushes and night sweats

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Research Supervisors & Associates

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Large variations in the experience of vasomotor symptoms

- Large differences across individuals and cultures in the experience of vasomotor symptoms (prevalence, duration, frequency, bothersomeness)

- There is increasing evidence that a range of factors plays a role in the experience of flushes:
  - hormonal and genetic differences, cultural attitudes, lifestyle factors (smoking, exercise, BMI), socio-economic status, climate
  - psychological factors

What are those psychological factors?

(Freeman & Sherif, 2007; National Institutes of Health, 2004; Sievert, 2006; Hunter et Chilcot, 2013)

Strong evidence of a mediative pathway of beliefs about the menopause in the experience of flushes
Research Questions

What cognitive/emotional factors influence menopausal beliefs?

What are the specific relationships between cognitive/emotional factors, menopausal representations, the appraisal of HF/NS, and coping strategies?

What is the best cognitive model to understand the experience of vasomotor symptoms?
PROPOSED COGNITIVE VULNERABILITY MODEL OF VASOMOTOR SYMPTOMS
<table>
<thead>
<tr>
<th>Cognitions/emotions associated with VMS</th>
<th>Study cognitive and emotional factors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypervigilance</strong> to somatic symptoms</td>
<td>Anxiety sensitivity</td>
</tr>
<tr>
<td><strong>Negative, catastrophic thoughts</strong> about self and consequences of VMS (irritation, panic, suffocation)</td>
<td>Catastrophic thinking</td>
</tr>
<tr>
<td><strong>Helplessness, negative thinking</strong> (frustration, despair)</td>
<td>Depressive thinking</td>
</tr>
<tr>
<td><strong>Embarrassment</strong> or <strong>social anxiety</strong> linked to appearance and unattractiveness, especially in work settings and/or company of men</td>
<td>Body consciousness/shame</td>
</tr>
<tr>
<td>Lack of <strong>self-efficacy/coping skills</strong>, thoughts of losing of control</td>
<td>Mastery/control beliefs</td>
</tr>
<tr>
<td><strong>Stress</strong></td>
<td>Perceived stress</td>
</tr>
</tbody>
</table>
**PROPOSED COGNITIVE VULNERABILITY MODEL OF VASOMOTOR SYMPTOMS**

**Cognitive & Emotional factors**
- Catastrophic Thinking
- Control Beliefs
- Depressive thinking
- Perceived Stress
- Anxiety Sensitivity
- Body Consciousness

**Menopausal representations**
- Cognitive & Emotional Representations

**VMS appraisal**
- Perceived frequency
- Bothersomeness
- Daily interference

**Coping strategies**
- Avoidance
- Cooling
- Positive Strategies

**Dimensions of cognitive menopausal representation:**

- **Identity:** Number of symptoms identified as part of my menopause?
- **Timeline:** How long will my menopause last?
- **Consequences:** Evaluation of the seriousness of my menopause and its impact?
- **Control:** How much control do I have over treatment/outcome?
Research Methodology

- Study part of the ongoing Rural Mental Health Research Series research (Royal Women Hospital and Melbourne University)

- Random sample from electoral roll in a rural area from northern NSW to southern Victoria

- Inclusion criteria: women aged between 40-60 years-old

- 1,644 questionnaires sent: 517 positive responses – 31.4% response rate

- For this study, only peri- and postmenopausal women\(^1\) who experienced vasomotor symptoms at time of responding and also completed the Menopause Representations Questionnaire\(^1\) were included – \(n = 171\)

\(^1\) According to STRAW +10 criteria
\(^2\)(MRQ, Hunter & O’Dea, 2001)
Some sample descriptive statistics
Hot Flushes Experience & Menopausal Status

- **Perceived frequency (per day/night)**
  - Hot flushes:
    - mean = 2.97 (4.97)
  - Night sweats:
    - mean = 1.50 (1.67)

- **Bothersomeness**: mean = 4.94 (2.09)
  - 5 items, Scale from 0-10
  - 0 = not at all bothered
  - 10 = very bothered
  - Perimenopausal
  - Postmenopausal

- **Daily Interference**: mean = 3.01 (2.34)
  - 10 items, Scale from 0-10
  - 0 = completely interfere
  - 10 = completely interfere

- **Sample menopausal status**
  - Perimenopausal: 14%
  - Postmenopausal: 86%

- Sleep: 5.98 (2.92) – Mood: 3.43 (3.00) – Sexual activity: 3.57 (3.40) – Concentration: 3.52 (3.00)
### SOME SAMPLE DESCRIPTIVE STATISTICS
#### DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>54.3 (3.5)</td>
</tr>
<tr>
<td>BMI</td>
<td>27.9 (6.4) Overweight range</td>
</tr>
<tr>
<td>Australian</td>
<td>94.2%</td>
</tr>
<tr>
<td>Married</td>
<td>77.8%</td>
</tr>
<tr>
<td>Have at least one child</td>
<td>92.4%</td>
</tr>
<tr>
<td>Lives with partner (with or without children)</td>
<td>80.7%</td>
</tr>
<tr>
<td>Working part-time or full-time</td>
<td>81.3%</td>
</tr>
<tr>
<td>Education: Secondary college</td>
<td>43.3%</td>
</tr>
<tr>
<td>Education: TAFE</td>
<td>30.4%</td>
</tr>
<tr>
<td>Education: University</td>
<td>22.8%</td>
</tr>
<tr>
<td>Had an hysterectomy</td>
<td>5.3%</td>
</tr>
<tr>
<td>Had a double oophorectomy</td>
<td>1.8%</td>
</tr>
<tr>
<td>Had both above</td>
<td>5.8%</td>
</tr>
<tr>
<td>Currently using HRT</td>
<td>1.2%</td>
</tr>
<tr>
<td>Currently using antidepressants</td>
<td>12.3%</td>
</tr>
</tbody>
</table>
COGNITIVE VULNERABILITY MODEL OF VASOMOTOR SYMPTOMS

Cognitive & Emotional Representations

- Menopausal representations
  - VMS Bothersomeness
  - Daily interference due to VMS
  - VMS Perceived Frequency
COGNITIVE VULNERABILITY MODEL OF VASOMOTOR SYMPTOMS

Menopausal representations

VMS Bothersomeness

VMS Perceived Frequency

Daily interference due to VMS

Bothersomeness

Perceived Frequency

Daily interference due to VMS

1.09
1.07
1.46
1.08
0.11

Menopausal representations

VMS Bothersomeness

VMS Perceived Frequency

Daily interference due to VMS

Bothersomeness

Perceived Frequency

Daily interference due to VMS

1.09
1.07
1.46
1.08
0.11
COGNITIVE VULNERABILITY MODEL OF VASOMOTOR SYMPTOMS

Catastrophic thinking
Control beliefs
Depressive thinking
Perceived stress
Anxiety sensitivity
Body consciousness

Menopausal representations

VMS Bothersomeness

Daily interference due to VMS

VMS Perceived Frequency

1.09
1.07
1.46
1.08
.11
COGNITIVE VULNERABILITY MODEL OF VASOMOTOR SYMPTOMS

Menopausal representations

- Catastrophic thinking (0.05)
- Control beliefs (0.23)
- Depressive thinking (0.07)
- Perceived stress (0.10)
- Anxiety sensitivity
- Body consciousness

VMS
- Bothersomeness:
  - Perceived stress
  - Depressive thinking

VMS Perceived Frequency

Daily interference due to VMS

- VMS Bothersomeness
- Perceived stress
- Depressive thinking
- Body consciousness
COGNITIVE VULNERABILITY MODEL OF VASOMOTOR SYMPTOMS

Menopausal representations

Catastrophic thinking

Control beliefs

Depressive thinking

Perceived stress

VMS Bothersomeness

VMS Perceived Frequency

Daily interference due to VMS

Perceived stress

Control beliefs

Depressive thinking

Catastrophic thinking

.05

.20

.73

-.14

.07

.05

.23

.07

.10

.10

.05

.11

.55

.36

.09

1.09

1.07

1.46

1.08
Table 1

Fit Indices of the Integrative Vulnerability Model of Vasomotor Symptoms

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>$X^2$</th>
<th>$p$</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSEA (90% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>37</td>
<td>51.93</td>
<td>.053</td>
<td>.972</td>
<td>.984</td>
<td>.049 (.000-.078)</td>
</tr>
</tbody>
</table>
Catastrophic thinking, control beliefs, depressive thinking and stress individually predict menopausal representations, which in turn predict appraisal of flushes (mediation pathway) but there are also direct effects.

AND other factors certainly play a part in forming beliefs about the menopause: medical practitioners’ opinions, media, cultural factors (stereotyping), friends and family (partners and mothers)

Flushes bothersomeness is predicted by a range of factors: perceived frequency of flushes, menopausal representations (or beliefs), control beliefs, catastrophic thinking, depressive thinking.

Menopausal representation, bothersomeness, not perceived frequency predicts daily interference due to flushes.

Catastrophic thinking and perceived stress also predict daily interference due to flushes.

Flushes appraisal predicts choice of coping strategies but coping strategies also likely to influence flushes appraisal (feedback loop).
How women view their menopause is an important factor in flushes appraisal and, addressing the cognitive and emotional content of menopausal beliefs, as well as women’s cognitive vulnerabilities, may greatly enhance symptom experience.
Thank you for your time

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