Mindfulness, Menses, and Body Awareness

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Perimenstrual Symptomatology

- Women are in a unique symptomatic position because of the cyclical rhythm of their reproductive cycle and the symptoms they experience with these monthly fluctuations.

- 90% of all women of reproductive age report negative physical, psychological, or relational symptoms in the days leading up to menses (Campange & Campagne, 2007).
- These symptoms range from mild and unobtrusive to absolutely debilitating (Kahn & Halbreich, 2003; Ross & Steiner, 2003).
- PMS/PMDD significantly related to numerous health risks and health behaviors (Lustyk, Gerrish, Douglas, Bowen, & Marlatt, under review).
- The cyclical pattern of these symptoms results in unique quality of impairment across multiple domains (Lustyk & Gerrish, 2008).
Premenstrual Symptomatology

- Understanding and treatment of these symptoms is compounded
  - huge within/between individual variability in symptom expression
  - no agreed upon etiological factor or definitive treatment.

- Proposed pathophysiology has included:
  - hormones, neurotransmitters, neuropeptides, prostaglandins, vitamins, allergies, stress, psychogenic factors…
  - None of these are consistently supported. (Fogel & Woods, 1995, Steiner et al, 2006)

- Treatments:
  - Pharmacotherapy → pregnancy issues, side effects, resistance to medication
  - CBT → very limited evidence (Lustyk, Gerrish, Shaver, & Keys, 2009)
Mindful Awareness

- Mindfulness is a process of non-evaluative and sustained awareness of a person’s present-moment self and environment.

- According to Kabat-Zinn, “Mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994, p. 4).

- Mindfulness taps into a type of awareness that is hypothesized to operate at a meta-cognitive level, closer to consciousness than to cognition (Brown & Ryan, 2003; Teasdale et al, 2002).
Mindfulness as a Treatment

- Mindfulness-based interventions have successfully:
  - reduced relapse in substance abusers (Witkiewitz, Marlatt & Waler, 2005)
  - reduced and managed anxiety (Kabat-Zinn et al., 1992)
  - coped with borderline PD (Bohus, Stiglmayr, Pohl, Bohme, & Linehan, 2000)
  - enhanced compliance in Bmed. interventions (Hayes, Strosahl, & Wilson, 1999)
  - managed chronic pain (Kabat-Zinn, 1982)
  - reduced depression relapse (Waller et al., 2006; Williams, Teasdale, & Segal, 2007)

- The empirical literature shows that the mindfulness skills learned and practiced through these interventions helps reduce somatic and psychological symptoms while increasing an overall sense of well-being in participants (Carmody & Baer, 2007; Dimidjian & Linehan, 2003; Greeson, 2009; Grossman, Niemann, Schmidt & Walach, 2004; Kabat-Zinn & Chapman-Waldrop, 1988; Kabat-Zinn et al., 1992; Witkiewitz & Marlatt, 2004)
Mindful Awareness and Women

- What is the relationship to women’s health?
  - It is thought to train attitudinal and cognitive processes at a level that influences both psychophysiological and neurobiological substrates as well as subjective assessments of physical experience (Brown & Ryan, 2003; Davidson et al., 2003; Holzel et al., 2008; Kabat-Zinn, 1994; Lazar et al., 2005; Rubia, 2009; Shapiro, Carlson, Astin, & Freedman, 2006)
  - Mindfulness has been unexpectedly found to show greater efficacy and/or a unique role with women in some studies (Kabat-Zinn et al., 1992; Marlatt, personal communication)
  - It may provide an avenue of treatment that increases compliance rates, enhances (or is more effective than) more traditional CBT, and that avoids the drawbacks of pharmacotherapy.
Body Awareness

- Untrained non-emotive somatic awareness has been shown to be positively correlated with self-reported symptom severity.
- Relationship of somatic awareness to health outcomes and health behaviors is not well understood and inconsistent results are found across studies that look at this variable (Bakal, 1999; Cioffi, 1991).
- Inconsistencies come from the difference in how body awareness is defined.
  - There are likely multiple components to body awareness that get compounded together in previous research.
Hypotheses

- Body awareness and premenstrual symptom severity reports will be positively correlated.

- Body awareness and trait mindfulness will be positively correlated.

- Mindfulness processes will be negatively correlated with premenstrual symptom severity reports.

- Mindfulness will moderate the relationship between body awareness and premenstrual symptom severity reports.
Methods

- Adult female participants were recruited from rural and urban primary care clinics across western Washington and among women who self-identified as symptomatic of PMS/PMDD.

- Eligibility criteria include affirming:
  - I am 18 years old or older.
  - I have had at least one menstrual cycle in my life.
  - I am not currently pregnant or nursing.
  - I experience negative symptoms associated with my menstrual cycle.
  - I have not experienced any symptoms related to menopause.
  - I have not stopped having a regular menstrual cycle (for any reason).
Measures

- **Demographics** – author constructed
  - Includes basic demographic and biomedical information
- **Premenstrual Symptoms Screening Tool** – (Steiner et al, 2003)
  - 19-item questionnaire
  - Designed to meet current diagnostic criteria for PMS/PMDD
- **Five Facet Mindfulness Questionnaire** – (Baer et al., 2006)
  - 39-item questionnaire
  - Five facets: (a) observing; (b) describing; (c) acting with awareness; (d) nonjudging; and (e) nonreactivity
- **Body Awareness Questionnaire** – (Shields & Simon, 1989)
  - 18-item questionnaire
  - Designed to assess self-reported attentiveness to normal non-emotive body processes
Analyses

- **Item Level:**
  - All values were within the expected range with no items showing demonstrable leverage on the distributions; no item-level data were changed or deleted.
  - Distributions viewed with PP plots and histograms showed adequately normal distributions and were also judged to meet West’s (2009, WPA) criteria of “normal enough” based on the ratio of skewness and kurtosis divided by standard error being <3:1.
  - Missingness was examined using SPSS missing values analysis and all indications were that all missing values were missing completely at random.
Analyses

- N = 84; mean age was 32 years old (range = 19 to 51)
- Most women self-identified as White (77%), about half were married (44%) and nulliparous (45%), and almost all (99%) reported menstrual cycles of average length.
- 34 affirmed having previous exposure to meditation/yoga
- 15 reported currently practicing meditation/yoga
- 48% reported having been diagnosed with PMS and/or PMDD

Groups dichotomized on these variables were compared on each of the predictor and outcome variables and all mean differences were non-significant. We further examined all data for outliers and finding none, meditation/yoga experience and diagnosis of PMS/PMDD were not treated as covariates in subsequent analyses.
Analyses

- Bivariate correlations were run between predictors (body awareness and mindfulness) and premenstrual symptoms.

<table>
<thead>
<tr>
<th></th>
<th>BAQ</th>
<th>Observe</th>
<th>Describe</th>
<th>Actaware</th>
<th>NonJudge</th>
<th>NonReact</th>
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<tr>
<td>PSST Symptoms</td>
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<td>.32**</td>
<td>-.02</td>
<td>-.40**</td>
<td>-.28**</td>
<td>.046</td>
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<tr>
<td>Sym*Life Impact</td>
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<td>.26*</td>
<td>-.03</td>
<td>-.39**</td>
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<td>.09</td>
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<td>.33**</td>
<td>.12</td>
<td>-.07</td>
<td>.27*</td>
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Note. *p < .05, **p < .01
Analyses

- To determine if mindfulness disposition or traits buffer the statistically significant relationships among body awareness and premenstrual symptom reports, multiple regressions with interaction probing were performed in accordance with the methods of Aiken and West (1991).
- To reduce the possibility of multicollinearity among the interaction terms and their component predictors, all predictors were mean centered prior to regression analyses (Aiken & West, 1991).
Summary of Hierarchical Regression Analysis for Body Awareness (BAQ), Trait Mindfulness (FFMQ), and Premenstrual Symptom Screening Tool (N = 84).

<table>
<thead>
<tr>
<th>Model</th>
<th>PSST</th>
<th>β</th>
<th>R²</th>
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<tr>
<td>Model 1</td>
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<tr>
<td>Body Awareness</td>
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<td>.11</td>
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<tr>
<td>Observe</td>
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<td>.028</td>
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<td>Body Awareness x Observe</td>
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<tr>
<td>Body Awareness</td>
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<td>.02**</td>
<td>.11</td>
</tr>
<tr>
<td>Acting with Awareness</td>
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<td>-.05**</td>
<td>.30</td>
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<tr>
<td>Body Awareness x Acting with Awareness</td>
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<td>.001</td>
<td>.30</td>
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<td>Model 3</td>
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<tr>
<td>Body Awareness</td>
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<td>.01**</td>
<td>.11</td>
</tr>
<tr>
<td>Nonjudging</td>
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<td>-.03</td>
<td>.17</td>
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<tr>
<td>Body Awareness x Nonjudging</td>
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<td>.00</td>
<td>.17</td>
</tr>
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</table>

Note. Observe = observation of general external experiences; Nonjudge = nonjudging of experiences; Acting with Awareness = attention and awareness to details; PSST = premenstrual symptom screening tool.

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Figure 1. Expected Interaction Effect

Figure 2. Linear Regression Equation

Mindfulness
Low
Medium
High

Regression of PSST/QOL Weighted Score on Mean Centered Body Awareness at Values of FFMQ Mean Score

PMS Severity
Discussion:

- Not what expected – But still very interesting!
- Aspects of mindful awareness and somatic awareness are significantly, but independently, related to premenstrual symptom severity reports.
- Mindfulness-based program for premenstrual symptom management will need to involve multiple approaches aimed at addressing the multiple mindfulness traits related to PMSR.
- Questions that need to be explored
  - DIF & EFA of FFMQ
    - what are the effects in an all female population
    - To what extent is “trait” mindfulness measurable (or relevant?)
  - Is there a ceiling effect with symptom experience and body awareness that a “non-emotive” questionnaire does not pick up
  - Further probing into distinction between general somatic awareness and mindful awareness.
Thank you Lab Team

Past Lab Team Members
- Rachel Ward, BA
- Ashley Holder, BA
- Andrea Miller, BS
- Matt Laughlin, BS
- Laura Widman, Ph.D.
- Jessica Henson, BS
- Erica Oakley-Smith, BA

Past Lab Team Members
- Amy Paschane, PhD
- Lindsey Reeves, BA
- Ben Carson, BA
- Shelley Shaver, BA
- Martine Marte, BS
- Cami Wells, BA
- Linda de Laveaga, BA

The Lustyk Women’s Health Lab

The Lustyk Women’s Health Lab within the Department of Psychology at Seattle Pacific University is housed within the research core of Marston Hall. We have several active members including graduate and undergraduate students all investigating the stress response in women. Our lab is equipped to measure psychological, physiological, and neuroendocrine stress responses to various laboratory stressors. Topics actively being investigated by Dr. Lustyk and her research team include:

- Interrelationships Among Mindfulness, Body Awareness, and Premenstrual Symptomatology
- Mindfulness Meditation Effects on Stress Reactivity and Recovery in Women
- Effects of Mindfulness Meditation on Symptom Severity in Women with Premenstrual Syndrome
- Stress Reactivity and Recovery in Women: Assessment of Menstrual Cycle Phase and Stressor Type
- Effects of Menstrual Cycle Phase on Exercise and Quality of Life in Women
- The Role of Premenstrual Symptom Severity in Cyclic Stress Reactivity and Recovery

M. Kathleen B. Lustyk, PhD is Professor of Psychology at Seattle Pacific University (SPU) and Affiliate Associate Professor in the Department of Biobehavioral Nursing and Health Systems at the University of Washington (UW) School of Nursing, which houses the Center for Women’s Health and Gender Research. Dr. Lustyk is the primary investigator of the Lustyk Women’s Health Lab at SPU where she investigates numerous issues impacting the lives of women. Much of her research has focused on stress, exercise, quality of life, and premenstrual symptom reporting in women. Most recently, Dr. Lustyk and her colleague, Dr. Alan Marlatt (UW Professor and Director of Addictive Behavior Research Center), have begun to investigate the therapeutic efficacy of Mindfulness Meditation for women with PMS and/or PMDD. In addition to her interest in Behavioral Medicine, Dr. Lustyk has served as a drug company consultant informing the development of new treatments for premenstrual symptomatology while considering quality of life issues in women. In 2002, Dr. Lustyk received the Outstanding Research Article Award from the Society of Gastroenterology Nurses and Associates for her work in women’s health.