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Brief report

Personal history of major depression may put women at risk for premenstrual dysphoric symptomatology

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ABSTRACT

Background: Premenstrual dysphoric disorder (PMDD) is a chronic condition that significantly affects a woman's well-being on a monthly basis. Although co-occurrence of PMDD and major depressive disorder (MDD) is common, most studies examine whether women with PMDD are at risk for depression and investigations of PMDD in depressed women are scant. Therefore, the present study examined rates of PMDD in young depressed women.
Methods: PMDD was assessed using a structured clinical interview (SCID-PMDD) in a sample of 164 young women with ($n=85$) and without ($n=79$) any history of depression.
Results: Rates of PMDD were elevated among women with MDD in this sample. This result held true regardless of participants' MDD status (current, lifetime or past history-only symptoms of MDD) and regardless of whether all or most DSM-IV-TR PMDD criteria were met.
Limitations: Sample size in the present study was relatively small, and daily diary data were not available to confirm a PMDD diagnosis.
Conclusions: The current study highlights the need for clinicians to assess for PMDD in young female patients with major depression. Depressed women experiencing the added physical and psychological burden of PMDD may have a more severe disease course, and future studies will need to identify appropriate treatments for this subset of depressed women.

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1. Background

Premenstrual dysphoric disorder (PMDD) is a chronic condition that significantly affects well-being during the reproductive years. The pattern of symptoms of PMDD is linked to the menstrual cycle, with the onset of symptoms in the late luteal phase and the symptom offset shortly after the beginning of menses (Freeman, 2004). PMDD is currently classified in the Diagnostic and Statistical Manual of Mental Disorders (DSM-4th ed.; American Psychiatric Association (APA), 2000) as a depressive disorder not otherwise specified, and based on existing research evidence, the Mood Disorders Work Group for DSM-5 proposed to move PMDD to the position of a full-category in DSM-5 (Epperson et al., 2012). Based on DSM-IV criteria, at least five of 11 symptoms are necessary for diagnosis, with at least one of the symptoms being related to mood. Symptoms include depressed mood, anxiety/tension, affective lability, anger/irritability, decreased interest, difficulty concentrating, fatigue, appetite changes, sleep difficulties, feeling out of control and physical symptoms (APA, 2000). PMDD is associated with significant personal and economic costs, increased work absenteeism, reduced work productivity (Heinemann et al., 2012), and reduced quality of life (Heinemann et al., 2010; Yang et al., 2008, 2010).

Sex differences in depression rates (Sprock and Yoder, 1997; Wolk and Weissman, 1995) suggest that women might be at increased risk for psychiatric illnesses as a result of naturally changing hormonal levels during their reproductive cycle (Miller et al., 2009). In addition to high rates of pregnancy, post-partum, and peri-menopausal depression (Soares and Zitek, 2008), up to 85% of menstruating women exhibit one or more menstrual cycle-related symptom, 20–40% report Premenstrual Syndrome (PMS), and 2–9% report PMDD (Clayton, 2008).

The comorbidity rates between major depressive disorder (MDD) and PMDD are high, spanning a range of 30–70% (Endicott, 1994). Both MDD (Kendler et al., 2006) and PMDD (Treloar et al., 2002) have heritable risk, suggesting the possibility that both PMDD and MDD share common risk mechanisms (Accortt and Allen, 2006; Accortt et al., 2011b).

Despite a significant overlap in symptoms between PMDD and MDD, the monthly recurrent and predictable pattern of symptom

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onset and offset is a key feature that distinguishes PMDD from other mood disorders (Endicott et al., 1999). Women with PMDD are also more likely to report physical symptoms such as bloating and breast tenderness (Di Giulio and Reissing, 2006; Hartlage et al., 2012) and irritability (Angst et al., 2001; Landen and Eriksson, 2003) as opposed to depressed mood (Bhatia and Bhatia, 2002). Additionally, treatment response to medications differs as women with PMDD report alleviation of symptoms almost immediately after administration of the serotonin reuptake inhibitors (SRIs; Steiner et al., 2005, 2008; Yonkers et al., 2006).

To date, a majority of studies have focused on whether women with PMDD are at risk for depression (Endicott and Halbreich, 1988; Pearlstein et al., 1990; Yonkers et al., 1997). There are very few investigations of the prevalence of premenstrual symptoms in depressed women (Halbreich and Endicott, 1985; Hsiao et al., 2004; Miyaoka et al., 2011), none of which provided interview-based assessments of PMDD. To address this gap, the present study examined rates of PMDD in a sample of young depressed women. Examining PMDD in the context of depression is important as these women may experience a more severe course of illness (Pilver et al., 2013) and have unique characteristics that influence treatment response.

Table 1
Demographic information.

	Entire sample	PMDD symptomatology
N subjects	164	25
Mean age	18.8 ± 1.2	18.9 ± 1.4
% HBC	36.6	40
% With Dysthymia	5.5	8.0
% With Lifetime MDD	52	80
Mean HRSD	8.0 ± 6.9	12.2 ± 7.0
Mean # PMDD Symptoms*	2.2 ± 2.6	6.8 ± 1.7
Race percentage		
Caucasian (%)	73.8	84
Other (%)	9.1	
Asian (%)	5.5	4
Black (%)	3.7	8
Am. Indian (%)	3.7	4
More than one (%)	0.6	
No response (%)	3.7	

Unless marked with an asterisk, no significant differences between these groups were found.
Note: PMDD = premenstrual dysphoric disorder. MDD = major depressive disorder. HBC = hormonal birth control. HRSD = Hamilton Rating Scale for Depression. Means are shown ± standard deviations.
* $p < 0.01$.

2. Methods

2.1. Participant selection

Participants with and without MDD were recruited in a larger study of depression (Stewart et al., 2010). All female subjects were assessed to determine PMDD status using a structured clinical interview (Accortt et al., 2011a). Participants with disorders other than PMDD, MDD, and dysthymia were excluded, as were any using prescription and psychotropic medications (see Accortt et al. (2011b) for full exclusion criteria). Intake interviews with eligible participants were conducted by graduate-level clinicians, who administered the Hamilton Depression Rating Scale (HDRS; Hamilton, 1967), Structured Clinical Interview for the DSM-IV (SCID; First et al., 1997), and SCID-PMDD. The SCID-PMDD is a reliable structured PMDD interview created from the DSM-IV-TR PMDD criteria, modeled after the SCID format (see Accortt et al. (2011a) for description and psychometric properties).

2.2. Population details

Out of 177 women recruited between 2004 and 2007, 7 women dropped out of the study, 6 women did not complete the PMDD interview for various reasons, resulting in 164 women included in this study. All participants were university undergraduate students with an average age of 18.9 years (± 1.2 s.d., range of 18–25). Table 1 presents demographic and birth control status details for the sample by diagnostic status. Use of birth control pills (BCP) was unrelated to PMDD status (see Table 1).

2.3. Participant grouping

Thirty women endorsing sufficient premenstrual symptoms were invited to participate in the daily diary monitoring (Daily Record of Severity of Problems, DRSP; Endicott et al., 2006). Because participants were not compensated for their participation, compliance was poor, and conclusive evidence of two consecutive cycles with late luteal phase mood worsening was not available. Five participants in whom partial diary data were able to disconfirm at least one cycle of late luteal mood worsening were removed from the PMDD experimental group. In the remaining group of 25 interview identified participants, 13 participants (8% of the entire sample) met DSM-IV-TR criteria for PMDD, endorsing five or more of the DSM-IV-TR items with symptoms that lasted four or more days. Twelve participants (7% of the entire sample) endorsed five or more of the DSM-IV-TR items, but did not fully meet the time specification criteria listed in the DSM-IV-TR because their symptoms lasted less than four days. These 12 women, together with the women meeting the strict criteria (totaling 25 participants), were classified as Spectrum PMDD. Participants were categorized in terms of MDD (lifetime and current) using the SCID. It is worth noting that the Mood Disorders Work Group for DSM-5 proposed revising the timing criterion such that symptoms need not be present for most of the week prior to the onset of menses, instead allowing the presence of symptoms during any point that week to be sufficient (Epperson et al., 2012). Under the proposed revised criteria, both Strict PMDD and Spectrum PMDD women in the present study would be diagnosed with PMDD.

3. Results

PMDD prevalence was 8% for the Strict PMDD classification (13/164), and an additional 7% (12/164) met DSM-IV-TR criteria for PMDD (including the impairment criterion) but symptoms did not last "most of the week," totaling 15% who were thus considered among the Spectrum PMDD classification.

3.1. Co-occurrence of diagnoses

The co-occurrence of MDD and PMDD was examined to determine if any history of MDD was associated with elevated rates of PMDD. To characterize the co-occurrence of PMDD classification and major depression status, a series of Chi Square tests were carried out to test the independence of PMDD classification and MDD status. Analyses were run separately for classifications of Strict PMDD (13 PMDD+ and 151 PMDD−) and Spectrum PMDD (25 PMDD+, 139 PMDD−), and also separately for Current MDD (37 MDD+, 127 MDD−), and participants with any History of depression (current or past MDD status) called Lifetime MDD status (85 MDD+, 79 MDD−). Moreover, to assess whether there was an increased likelihood of PMDD in women with past history of MDD, unconfounded by current MDD or dysthymia