

# 115 Premenstrual Syndrome and Premenstrual Dysphoric Disorder: Issues of Quality of Life, Stress and Exercise

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<i>1 Introduction</i> .....	1952
<i>2 PMS and PMDD Diagnostic Criteria</i> .....	1953
<i>3 Epidemiology/Etiology</i> .....	1955
<i>4 Quality of Life</i> .....	1960
<i>5 Symptomatology and Stress</i> .....	1962
<i>6 Treatments</i> .....	1967
<i>Summary Points</i> .....	1971

**Abstract:** The [▶ symptomatology](#) associated with the menstrual cycle in women ranges broadly in severity. [▶ Molimina](#) is the subclinical symptomatology affecting up to 90% of all women. [▶ Premenstrual Dysphoric Disorder](#) (PMDD) is the most severe form of [▶ premenstrual syndrome](#) (PMS). PMDD is debilitating and consists mainly of affective symptomatology that interferes with quality of life (QOL). While the etiologies of PMS/PMDD remain unknown, symptoms are both physiological and psychological and as such an interdisciplinary biopsychosocial approach is needed to investigate the burden and decreased QOL in sufferers. This burden is considerable as up to 30% of women suffer from PMS and 5–6% have PMDD with nearly 4 years of projected disability for the latter. Published treatment guidelines recommend behavioral modifications as first-line therapeutic interventions for PMS with effective pharmacological options approved for PMDD. However, the efficacies for behavioral interventions are not well established, in part due to weaknesses in the research methods used to test a treatment effect, and resultant inconsistencies in findings. In addition, some strategies involving daily effort (e.g., [▶ Cognitive-Behavioral Therapy](#)) may be impractical in the face of the unique characteristics of cyclic symptoms. Other strategies such as aerobic exercise may be effective, but require motivation to perform during a period of time when sufferers feel particularly poor. As such, aerobic exercise by itself may be an unrealistic treatment option. Treatments that can reduce and/or manage [▶ stress](#), elevate mood, and curb physical discomforts are needed. However, it may be impracticable to expect therapeutic success in all of these areas from a single intervention. Current research is therefore investigating complementary combinations of pharmacological and behavioral treatments as possible management strategies for PMS/PMDD.

**List of Abbreviations:** *AAFP*, American Academy of Family Physicians; *ACOG*, American College of Obstetricians and Gynecologists; *CAM*, Complementary and Alternative Medicine; *CBT*, Cognitive Behavioral Therapy; *DSM*, [▶ Diagnostic and Statistical Manual](#); *FDA*, Food and Drug Administration; *HPA*, Hypothalamic-Pituitary-Adrenal; *HR-QOL*, Health Related Quality of Life; *ICD*, [▶ International Classification of Diseases](#); *NIMH*, National Institute of Mental Health; *PMDD*, Premenstrual Dysphoric Disorder; *PMS*, Premenstrual Syndrome; *QOL*, Quality of Life; *SSRIs*, [▶ Serotonin Specific Reuptake Inhibitors](#)

## 1 Introduction

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It is common for women of child-bearing age to experience discomfort during the days prior to menstruation. For some women, these premenstrual symptoms are severe enough to [▶ affect](#) their quality of life (QOL) by negatively affecting behavior and interfering with daily activities. According to Campagne and Campagne (2007), “More women and their families are affected by the physical and psychological irregularities due to premenstrual symptoms than by any other condition” (p. 4). Still, others seem to remain nearly symptom free or have the ability to cope with their discomforts. Attempts at understanding the nature of these extremes has led to the adoption of terms such as molimina, which describes the typical subclinical symptomatology affecting up to 90% of all women, Premenstrual Syndrome (PMS), which is the diagnosis given when symptomatology is severe enough to interfere with daily activities and negatively affect well-being, and Premenstrual Dysphoric Disorder (PMDD), the diagnosis for severe PMS with a specific focus on affective symptomatology.

Unlike other psychophysical conditions that affect women on a daily basis, the burden of PMS/PMDD may be misperceived as less severe because it affects only a subset of women during their [luteal cycle phase](#). Yet, as Stoddard et al. (2007) point out “. . . [women] have between 400 and 500 menstrual cycles over their reproductive years, and since premenstrual distress symptoms peak during the 4–7 days prior to menses, consistently symptomatic women may spend from 4 to 10 years of their lives in a state of compromised physical functioning and/or psychological well-being” (2007, p. 28). Therefore, in this chapter we address the burden of PMS/PMDD as a primary women’s health concern. We begin by providing the research/diagnostic criteria for PMS and PMDD, briefly address epidemiology and etiology, and continue with a discussion of the effects of PMS/PMDD on QOL including issues of stress. We conclude with an overview of treatment options with particular focus on behavioral medicine strategies such as exercise.

## 2 PMS and PMDD Diagnostic Criteria

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The evolution of diagnostic criteria for PMS and PMDD has a confusing and controversial history that has led to frustration among scholars and caregivers who are unclear of what symptoms constitute either disorder. [Figure 115-1](#) provides a time line starting with initial clinical observations and moving through the establishment of research guidelines. Today, the tenth revision of the International Classification of Diseases (ICD-10) places PMS under “Diseases of the genitourinary system: Pain and other conditions associated with female genital organs and menstrual cycle” and labels it as Premenstrual Tension Syndrome (N94.3) (WHO: World Health Organization, 2004).

Given that the ICD does not provide a minimum number of symptoms or functional impairment criteria required for a diagnosis of PMS, the American College of Obstetricians and Gynecologists (ACOG) published diagnostic guidelines in 2000 for PMS combining both the National Institute of Mental Health (NIMH) criteria and supportive research evidence ([Figure 115-2](#) summarizes these guidelines). Accordingly, a diagnosis of PMS may be made if symptoms include at least one of the somatic and affective symptoms listed, with a calculated 30% increase in symptom reports during the 6 days preceding menses compared to days 5–10 post-menses. These symptom pattern/severity changes need to be documented in a daily diary for 2–3 cycles for diagnosis. In addition, the severity of change must result in some life impairment. In other words, the magnitude of change has to be clinically meaningful and not simply represent a mathematical change which may be virtually imperceptible to the patient and therefore not be a hindrance to them. These guidelines also serve to distinguish PMS from premenstrual magnification of other disorders. Numerous symptom assessments exist and are summarized in [Table 115-1](#) and several examples are provided in the Appendix.

PMS is a distinct diagnosis from PMDD which is identified by the ICD-10 as “Other mood [affective] disorders (F38)” (WHO, 2004). Diagnostic criteria for PMDD as they appear in the current Diagnostic and Statistical Manual for Mental Disorders (DSM-IV-TR) are provided in [Figure 115-3](#). Overlap in the symptoms listed for PMS and PMDD exist; however, with PMDD emphasis is placed on the first four symptoms listed, which are affective symptoms. Symptoms of PMDD are disabling in that they interfere with normal functioning and often lead women to seek treatment. In general, PMDD is seen as the most severe form of PMS inflicting the greatest amount of impairment on women’s functioning and perceived life quality.

■ **Figure 115-1**

Time line depicting the evolution of terminology and diagnostic criteria for PMS/PMDD. From the early writings of Hippocrates to the current diagnostic standards of the American College of Obstetricians and Gynecologists and the American Psychiatric Association, this timeline provides an overview of noteworthy figures and events in the history of what we now call PMS and PMDD. *PMS*, premenstrual syndrome; *PMDD*, premenstrual dysphoric disorder; *OB/Gyn*, medical doctor of obstetrics and gynecology; *QOL*, quality of life

PMS/PMDD



Courtesy of the National Library of Medicine

Pre 1800's Hippocrates provided a description of observed premenstrual mood changes.

1847 Dr. Ernst F. Von Feuchtersleben provided a description of menses moodiness.

1931 American neurologist Dr. Robert Frank coined the term Premenstrual Tension from his observations of a small number of women who experienced seizures and mood changes premenstrually.

1938 Dr. Leon Israel was the first OB/Gyn specialist to use the term Premenstrual Tension. He further quantified the time and length of cycle in which personality was affected.



Courtesy of Hunter House Publishers  
www.hunterhouse.com

1953 Dr. Katharina Dalton introduced the term Premenstrual Syndrome and established the first clinic in Britain to treat the condition.



©WHO/P.Virot Courtesy of the World Health Organization

1982 Premenstrual Syndrome was given an International Classification of Diseases (ICD) diagnostic code by the World Health Organization.

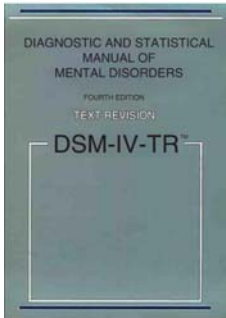
■ Figure 115-1 (continued)



Courtesy of the National Institute of Health

1983 The National Institute of Mental Health provided research criteria for the study of PMS including the recommendation for prospective symptom reporting and symptom severity determination.

1987 Late Luteal Dysphoric Disorder (LLDD) was distinguished as a severe form of PMS by the American Psychiatric Association (APA). Conceptual guidelines for recognition of LLDD were provided in the appendix of the 3rd and revised edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM).



1994 Premenstrual Dysphoric Disorder (PMDD) replaced LLDD in the 4th edition of the DSM under "Mood disorders not otherwise specified", and provided symptom occurrence, severity, and QOL impairment guidelines for diagnosis. Two months of prospective symptom reporting are required for diagnosis. PMDD remains in the current DSM-IV-TR edition.

2000 The American College of Obstetrics and Gynecology published diagnostic and treatment guidelines for PMS keeping with the ICD nomenclature which distinguishes it from PMDD. These criteria include a minimum symptom number, severity, and QOL impairment guidelines for diagnosis. At least two months of prospective symptom reporting are required for diagnosis.

### 3 Epidemiology/Etiology

Prevalence estimates for PMS vary widely among reports. Factors contributing to this range are how the condition is defined and assessed (retrospective vs. prospective measures) and the different study populations investigated. According to recent epidemiological investigations using the current diagnostic criteria for PMS published by the ACOG, the prevalence of PMS among women in the United States (US) ranges from 19% (Strine et al., 2005) to up to 30% (Dean et al., 2006) with women in their late twenties and early thirties most likely to seek health care for their symptoms (Dell, 2004). The prevalence for PMDD is considerably less. Using prospective assessments and DSM-IV-TR diagnostic criteria in women of reproductive

■ **Figure 115-2**

**Diagnostic criteria for premenstrual syndrome (PMS).** These criteria allow healthcare providers to make a diagnosis of PMS by assessing the presence of an affective and somatic symptom and their cyclical nature. <sup>a</sup>Symptoms appear alphabetically and are not in order of importance or prevalence. *PMS, premenstrual syndrome*

- A diagnosis of PMS may be given if subjective patient reports gathered prospectively from the five days before menses include at least one affective and somatic symptom from the lists below<sup>a</sup>:
  - Affective Symptoms
    - Anger (with possible outbursts)
    - Anxiety
    - Avolition or social withdrawal
    - Confusion
    - Depression
    - Irritability
  - Somatic Symptoms
    - Headache
    - Tender/swollen/painful breasts
    - Water retention/swelling of extremities
    - Water retention/bloating of the abdomen

Also for diagnosis, these symptoms should:

- Remit within 4 days of menses onset
- Not recur until at least day 13 of the subsequent cycle
- Not be due to any medications including hormones, or drug or alcohol use
- Be present across at least two cycles as demonstrated by prospective reports
- Be associated with subjective reports of dysfunction

Source: Compiled in part from these sources: Campagne & Campagne, 2007; ACOG Practice Bulletin #15, April 2000.

age, four different studies report very similar findings. In a community sample in Munich, Germany, Wittchen et al. (2002) identified 6% with PMDD. The prevalence in US women is between 5% (Sternfeld et al., 2002) and 6% (Cohen et al., 2002), and 5% among Canadian women (Steiner and Born, 2000).

It is worth noting that the prevalence difference between PMS and PMDD may be related to the self-report measures used to diagnose the two conditions. When the ACOG guidelines are used to diagnose PMS, women have the opportunity to report each symptom, including physical symptoms separately (▶ [Figure 115-2](#)). Conversely, the DSM-IV-TR criteria for PMDD tethers all physiological symptoms other than fatigue and appetite changes together as a single item (see item 11 in ▶ [Figure 115-3](#)). Also, the presence of five symptoms is required for diagnosis. It may be that a woman suffers from all five of the physical symptoms listed in item 11 along with only one affective symptom. In this situation, she would meet the criteria for diagnosis of PMS but not for PMDD. On one hand, these strict criteria may prevent over diagnosing or pathologizing women. On the other hand, it may cause women who just miss the cut-off criteria to go without beneficial treatments.

These difficulties surrounding diagnoses are further compounded by the fact that the etiologies of PMS/PMDD are unknown. Research which takes a biomedical approach has

Table 115-1  
PMS/PMDD symptomatology assessments

Instrument Abbreviation	Instrument Full Name	Source	Repeated Measure (RM) vs. Single Assessment (SA)
COPE	Calendar of premenstrual experiences	University of California, San Diego; Department of Reproductive Medicine, H-813; Division of Reproductive Endocrinology; psychometrics available in: Mortola et al. 1990	RM
DRSP <sup>a</sup>	Daily record of severity of problems	Endicott et al. 2004; sample appears in the Appendix; available for download at: <a href="http://pmdd.factsforhealth.org/have/dailyrecord.asp">http://pmdd.factsforhealth.org/have/dailyrecord.asp</a>	RM
DSR	Daily symptom rating scale	Freeman et al. 1996; sample appears in the Appendix	RM
MDQ <sup>b</sup>	Menstrual distress questionnaire	Moos, 1968 <sup>a</sup> ; available for purchase at: <a href="http://portal.wpspublish.com/portal/page?_pageid=53,112689&amp;_dad=portal&amp;_schema=PORTAL">http://portal.wpspublish.com/portal/page?_pageid=53,112689&amp;_dad=portal&amp;_schema=PORTAL</a>	RM/SA
MSSL	Menstrual symptom severity list	Mitchell et al., 1991; sample appears in the Appendix	RM
PEA <sup>b</sup>	Premenstrual experience assessment	Futterman et al., 1988; sample appears in the Appendix	SA
PDS	Premenstrual daily symptom diary	Diary appears in its entirety in: Dickerson et al., 2003	RM
PMSD	Premenstrual symptom diary	Thys-Jacobs et al., 1995; sample appears in the Appendix	RM
PMST	Premenstrual symptom tracker	NWHIC; available for use at <a href="http://www.4woman.gov/faq/pms.htm">http://www.4woman.gov/faq/pms.htm</a>	RM

Table 115-1 (continued)

Instrument Abbreviation	Instrument Full Name	Source	Repeated Measure (RM) vs. Single Assessment (SA)
PRISM	Prospective record of the impact and severity of menstrual symptoms	Reid 1985; sample appears in the Appendix	RM
PSST	Premenstrual symptoms screening tool	Tool appears in its entirety in: Steiner et al., 2003	SA
PMP	Premenstrual profile	Campagne and Campagne 2007; sample appears in the Appendix	RM
SPAF <sup>b,c</sup>	Shortened premenstrual assessment form	Allen et al., 1991; sample appears in the Appendix	SA

This table lists many of the tools used to assess a woman's premenstrual symptoms. Some of these tools are designed to be a one-time measure of symptoms as indicated by the abbreviation SA for single assessment. The others are daily diary methods of assessment (i.e., repeated measures abbreviated as RM). We have provided the actual tools (that are not copyrighted or that we received permission to reproduce) in the Appendix along with scoring information. For those that are available on-line, the web address is provided in the table.

<sup>a</sup>This is the updated Daily Rating Form by Endicott et al. (1986)

<sup>b</sup>Multiple versions exist

<sup>c</sup>This is the shortened version of the original 95-item Premenstrual Assessment form of Halbreich et al., 1982

**■ Figure 115-3**

**Research criteria for premenstrual dysphoric disorder. To diagnose a woman with PMDD, a healthcare provider would begin by assessing the symptomatology listed in A and proceed with applying the instructions detailed in B through D. PMDD, Premenstrual Dysphoric Disorder**

Title: Research criteria for premenstrual dysphoric disorder.

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- A. In most menstrual cycles during the past year, five (or more) of the following symptoms were present for most of the time during the last week of the luteal phase, began to remit within a few days after the onset of the follicular phase, and were absent in the week postmenses, with at least one of the symptoms being either (1), (2), (3), or (4):
- (1) markedly depressed mood, feelings of hopelessness, or self-deprecating thoughts
  - (2) marked anxiety, tension, feelings of being "keyed up," or "on edge"
  - (3) marked affective lability (e.g., feeling suddenly sad or tearful or increased sensitivity to rejection)
  - (4) persistent and marked anger or irritability or increased interpersonal conflicts
  - (5) decreased interest in usual activities (e.g., work, school, friends, hobbies)
  - (6) subjective sense of difficulty in concentrating
  - (7) lethargy, easy fatigability, or marked lack of energy
  - (8) marked change in appetite, overeating, or specific food cravings
  - (9) hypersomnia or insomnia
  - (10) a subjective sense of being overwhelmed or out of control
  - (11) other physical symptoms, such as breast tenderness or swelling, headaches, joint or muscle pain, a sensation of "bloating," weight gain

Note: In menstruating females, the luteal phase corresponds to the period between ovulation and the onset of menses, and the follicular phase begins with menses. In nonmenstruating females (e.g., those who have had a hysterectomy), the timing of luteal and follicular phases may require measurement of circulating reproductive hormones.

- B. The disturbance markedly interferes with work or school or with usual social activities and relationships with others (e.g., avoidance of social activities, decreased productivity and efficiency at work or school).
- C. The disturbance is not merely an exacerbation of the symptoms of another disorder, such as Major Depressive Disorder, Panic Disorder, Dysthymic Disorder, or a Personality Disorder (although it may be superimposed on any of these disorders).
- D. Criteria A, B, and C must be confirmed by prospective daily ratings during at least two consecutive symptomatic cycles. (The diagnosis may be made provisionally prior to this confirmation.)
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postulated that while reproductive hormone release patterns are normal in women with PMS/PMDD, they may have heightened sensitivity to these hormonal changes (Halbreich, 2003; Halbreich and Monacelli, 2004). This biomedical model is partly supported by evidence from twin studies demonstrating a higher concordance of symptoms in monozygotic versus dizygotic pairs (Treloar et al., 2002). Further support comes from treatment success with pharmacological interventions such as serotonin specific reuptake inhibitors (SSRIs) and oral contraceptives (see Treatment section below). This therapeutic efficacy argues for the influence of putative neuroendocrine factors. Collectively, these findings have some scholars positing that women with a genetic predisposition for PMS/PMDD may experience endocrine/neuroendocrine responses in a more extreme manner that contribute to symptom expression (Mishell, 2005). Even still, the absence of a unified biological explanation has led to the development of multivariable models that include biopsychosocial factors.

## 4 Quality of Life

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One such variable that relates to both diagnostic criteria and overall disease burden is QOL. QOL is a multidimensional construct that includes a person's subjective judgment of their overall life experience. As a central measure in [Positive Psychology](#), QOL assessments direct attention away from the negative aspects of life and offer an alternative to traditional objective measures of success, social functioning, and/or life-satisfaction. When QOL assessments combine these subjective judgments of satisfaction with ratings of importance they allow for determination of congruence between desired and achieved life experiences. When the assessment of QOL is framed by a particular illness, it is termed health related quality of life (HR-QOL). As a research construct, no single definition of QOL exists. Instead, it is operationally defined by the tools used to measure it.

The scientific study of QOL is a young science. In studying human behavior, the science of psychology has historically been concerned with dysfunction rather than health, positive functioning, or well-being. Relatedly, the subjectiveness of QOL reports has historically been unwelcome through the doors of medicine. Fortunately, the aims of modern medicine include fostering preventive mindsets and health maintenance behaviors in patients rather than providing only reactive and acute care. Even the most hard-lined biomedical approach, in light of these aims, must recognize the importance of assessing patients from a more global perspective. This includes assessing cognitive and affective burdens of a disease or disorder. This approach, along with the desire to assess patients' self-reported/subjective impressions of their health, has led to a scholarly boom in the literature addressing QOL.

Studies investigating HR-QOL in women with PMS/PMDD have typically used symptom checklists such as those designed for diagnosis. This is in part due to the fact that the diagnostic criteria for PMS/PMDD requires the use of daily checklists over consecutive cycles, and as such the burden of the illness is inherent in the diagnosis. For a diagnosis of PMDD, impairment in social or occupational functioning must be attributable to reported symptoms. These disease-specific HR-QOL measures therefore differ from non HR-QOL in two important ways. First, the use of symptom checklists leaves out many QOL domains affected by symptoms indirectly. For example, symptom checklists do not ask about the financial burden of PMS/PMDD manifested by increased doctor visits, increased drug costs, lost work days, and/or childcare costs. Second, by adding importance ratings, non HR-QOL measures allow for assessment of congruence between acquired and desired outcomes. These may be

distinguishable from the disease or disorder in question by the person doing the reporting. For example, a women with PMS may find that her affective changes interfere with her relationships at work; however, she may not value those relationships and therefore she is unaffected by cyclically intermittent interference with them. Assessing these subjective aspects of disturbance without a measure of satisfaction and importance, as is done with a HR-QOL symptom checklist, would not allow for determination of such incongruence.

Recently several researchers have investigated the financial burden of PMS/PMDD. Dean and Borenstein (2004) found that women with PMS reported more days missed at work and less work productivity than women without PMS, a pattern also found in women with PMDD (Robinson and Swindle, 2000). Chawla et al. (2002) also found that the economic burden of PMDD was due to reported decreases in productivity at work. Furthermore, these researchers found that as symptom severity increased so too did healthcare utilization including emergency room visits and visits to primary care physicians. Similarly, Borenstein et al. (2003) reported a financial burden of \$500 US dollars over a 2 year period attributed to physician costs for PMS care. More recently, Borenstein et al. (2005) found the annual financial burden of absenteeism and decreased productivity while at work resulted in \$4333 US dollars lost per patient, whereas the cost for healthcare increased only \$59 US dollars. This implicates an indirect path (workplace difficulties and the resultant financial losses) as a more significant burden to women than the direct encumbrance of increased medical expenses. Another striking finding by Halbreich et al. (2003) is their reported estimate that the burden of PMDD over the reproductive years of those diagnosed is 3.8 years of disability.

Thus, the cumulative effects of PMS/PMDD on a woman's QOL are not restricted to what is covered in a physical examination or assessed by symptom checklists. Missed workdays and affected relationships continue to add stress long past the end of the symptomatic period. Thus, a true measure of burden should assess the affects of PMS/PMDD across various domains of life that are relevant to women in the 20–40 year old age range when PMS symptoms are most prevalent. The Frisch Quality of Life Inventory (QOLI: NCS Pearson Inc, 1994) is a 32-item scale that offers an overall QOL score as well as a weighted life satisfaction profile across 16 domains and has been used in women's health research (Lustyk et al., 2004a). The QOLI was originally developed to provide a measure of positive mental health, and it is designed to take into account both cognitive and affective components of well-being. With a heuristic approach, the QOLI measures how individuals *feel* in terms of negative or positive affect, as well as how *satisfied* individuals are in terms of their cognitive appraisal of how well their needs are being met. As this tool is not public domain, we will briefly describe it here and refer interested readers to—<http://www.pearsonassessments.com/tests/qoli.htm> for ordering information.

In completing this inventory, participants are instructed to rate the importance of, and their satisfaction with, 16 specific life domains including: Health, Self-esteem, Goals-and-Values, Money, Work, Play, Learning, Creativity, Helping, Love, Friends, Children, Relatives, Home, Neighborhood, and Community. The resultant scores are the products of importance and satisfaction ratings for each domain. Domains that are rated as not important by the participants are not given a domain score, nor are they included in the overall QOL score.

The QOLI is appropriate for use with adults (18-years and older). It is written at a sixth-grade reading level, and can be used in an interview format for those who cannot read or who are visually impaired. The measure was separately normed in racially and ethnically diverse nonclinical samples. Psychometric tests found the QOLI to have adequate internal

consistency, temporal stability, and convergent validity with other life satisfaction/QOL measures. Weighted satisfaction ratings for each domain have not been individually psychometrically validated. However, because these domains highlight areas relevant to women's lives (e.g., career, family, and social networks), assessing them may aid in treatment planning and targeting specific treatment goals. The QOLI has also been used successfully as a [repeated measures](#) tool in both longitudinal research designs and for charting clinical changes in patients (NCS Pearson Inc, 1994).

The QOLI was used in a women's health study investigating interrelationships among QOL, perceived stress, premenstrual symptomatology, and exercise (Lustyk et al., 2004a). Symptom severity was used to separate women into high and low symptomatology groups for comparisons. Not only did the more symptomatic women report more stress, they reported poorer QOL. Calculated values for each of the QOLI domains are provided in [Table 115-2](#). Of particular interest are the significant differences in the self-esteem, goals and values, and money domains as none of these aspects of QOL are assessed by symptom checklists. Such findings support a theoretical argument against using only symptom checklists to assess QOL in women with PMS/PMDD as they leave important variables unassessed. Perhaps the best strategy is to use a symptom specific assessment along with a global, non-health related QOL assessment.

In 2006, Sarah Gehlert and her colleagues developed the Women's Quality of Life Scale designed specifically for healthy women of reproductive age (Gehlert et al., 2006). We provide this tool in its entirety along with scoring instructions in [Figure 115-4](#). This groundbreaking tool, which provides a gender specific non HR-QOL assessment, may actually serve to measure QOL in women with PMS/PMDD. In the development of the questionnaire, respondents were queried on their perceived importance of each item. Furthermore, all items were evaluated by experts in women's health research further bolstering their semantic validity. [Factor analyses](#) used to identify items of importance revealed four 10-item domains assessing physical, mental, social, and spiritual health. This work is of particular note because it was based on a large multi-ethnic sample of 1,207 women from both rural and urban dwellings that represent a broad socioeconomic status range. The resultant tool is particularly easy to read, use, and score. Time will tell if its psychometric properties hold for the investigation of QOL in women with PMS/PMDD.

## 5 Symptomatology and Stress

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When the NIMH provided research criteria for PMS in 1983, ([Figure 115-1](#)) an era of investigations into the biopsychosocial concomitants of the condition began. The research acumen of Nancy Fugate-Woods and colleagues contributed much to our understanding of the interplay among perceived/psychological stress, stressful life events, and physiological stress with premenstrual symptomatology (Woods et al., 1982, 1997, 1998). While this work was performed before the new diagnostic criteria for PMS were published (ACOG, 2000), it remains noteworthy given its superior methodological and analytic approach. Furthermore, Mitchell, Woods, and Lentz (1991) are credited with bringing to the fore the importance of criterion-based symptom severity assessments. Such assessments address the clinical relevance of symptom changes across the cycle in women which may ultimately impair their QOL. Yet, to underscore the importance of understanding the interrelationships among stress and symptomatology in women diagnosed under current criteria, studies reported here for

**Table 115-2**  
**Quality of life scores for women with low and high PMS**

Quality of Life Value	Low Mean	PMS (n = 38) SD	High Mean	PMS (n = 44) SD	P value <sup>1</sup>
Overall raw score	3	.92	2	1.5	.01
Subscales:					
Health <sup>a</sup>	3	2.7	2	3.1	.45
Self Esteem <sup>b</sup>	3	2.8	1	3.6	.03
Goals & Values <sup>c</sup>	3	2.5	3	3.1	.94
Money <sup>d</sup>	1	1.6	1	1.8	.29
Work <sup>e</sup>	2	2.2	1	2.6	.29
Play <sup>f</sup>	4	2.0	3	2.8	.05
Learning <sup>g</sup>	3	2.1	2	2.3	.32
Creativity <sup>h</sup>	2	2.1	2	2.6	.92
Help <sup>i</sup>	1	2.1	2	2.6	.54
Love <sup>j</sup>	2	3.5	2	3.4	.96
Friends <sup>k</sup>	4	2.4	4	2.7	.68
Kids <sup>l</sup>	2	3.0	2	2.8	.61
Home <sup>m</sup>	3	2.3	2	2.8	.50
Neighborhood <sup>n</sup>	2	2.4	2	2.3	.93
Community <sup>o</sup>	2	2.2	2	2.6	.18
Relatives <sup>p</sup>	4	2.0	4	2.2	.56

This table shows the mean QOL scores for women with high or low levels of premenstrual symptoms. The means reflect the overall QOL score and the scores for the individual 16 domains. Scores are a product of ratings of importance and overall satisfaction. This generates weighted scores that range from -6 (extremely important *and* very dissatisfied) to +6 (extremely important *and* very satisfied). Scores above zero are in the satisfied range and indicate increasing importance and satisfaction as they approach +6

<sup>a</sup>Physical fitness, free of illness, disability or pain

<sup>b</sup>Self approval

<sup>c</sup>Desired accomplishments and matters of importance

<sup>d</sup>Adequate earnings and goods at present and future projections

<sup>e</sup>Activities in and out of home or school where one spends most of their time

<sup>f</sup>Leisure time activity

<sup>g</sup>Knowledge acquisition

<sup>h</sup>Using imagination to come up with solutions to problems or engaging in a hobby

<sup>i</sup>Assisting those in need

<sup>j</sup>Intimate romantic relationship

<sup>k</sup>Non-relative, close relationships

<sup>l</sup>Importance of having/not having a child or one's happiness and relationship with children

<sup>m</sup>Importance and satisfaction with one's dwelling

<sup>n</sup>Importance and satisfaction with area surrounding one's dwelling

<sup>o</sup>Importance and satisfaction with the city of one's dwelling

<sup>p</sup>Relationships with those one is related to; *SD*, standard deviation; *n*, sample size; *PMS*, premenstrual syndrome; *QOL*, Quality of Life

<sup>1</sup> Group differences assessed by T-test.

Source: Lustyk et al. (2004) *Women & Health* 39: 35-44. Reprinted with permission from Haworth Press, Inc., <http://www.haworthpress.com/web/WH>. Article copies available from the Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: [docdelivery@haworthpress.com](mailto:docdelivery@haworthpress.com)

■ Figure 115-4

The women's quality of life questionnaire. This questionnaire allows for the assessment of QOL in women. To score, <sup>a</sup> Items are reverse scored. [P] items contributes to the Physical domain, [Y] items contribute to the Psychological domain, [C] are Social domain items, and [S] are Spiritual domain items. Domain scores reflect endorsement totals weighted one point each. After reverse scoring, larger values are indicative of higher QOL

Title: The women's quality of life questionnaire

Please answer "YES" or "NO" to the following questions based on how you have felt during the last week of your life. Mark "N/A" if the question does not apply to you (for example, if it asks about children, but you have none).

	Question	Answer		
		Yes	No	N/A
1 <sup>a</sup>	I have had to stay in bed or a chair for most of the day most days. [P]			
2 <sup>a</sup>	I have been limited in doing either my work or other daily activities. [P]			
3 <sup>a</sup>	I have had pain on a regular basis. [P]			
4	My health has been excellent. [P]			
5 <sup>a</sup>	I have avoided contact with my friends and relatives. [P]			
6 <sup>a</sup>	Pain has interfered with my daily activities. [P]			
7 <sup>a</sup>	I have been very nervous. [P]			
8 <sup>a</sup>	I have worried that I am losing my health. [P]			
9 <sup>a</sup>	I have worried about things happening to my relatives or friends without good reason. [P]			
10 <sup>a</sup>	I have frequently felt anxious. [Y]			
11 <sup>a</sup>	I've often felt tense. [Y]			
12 <sup>a</sup>	I've often felt irritable. [Y]			
13 <sup>a</sup>	I've felt depressed. [Y]			
14	I have been happy, satisfied, or pleased with my personal life. [S]			
15	I have felt emotionally stable and sure of myself. [S]			
16 <sup>a</sup>	I have had difficulty coping with my children. [C]			
17 <sup>a</sup>	My partner and I have had difficulty talking about anything. [C]			
18 <sup>a</sup>	My partner and I have not been getting along as well as we usually do. [C]			
19 <sup>a</sup>	Physical or emotional problems have interfered with my family life. [C]			
20 <sup>a</sup>	I have had real problems interacting with my family. [C]			
21 <sup>a</sup>	Because of my physical or emotional condition, I have had trouble meeting the needs of my family. [C]			
22 <sup>a</sup>	I've felt that I might harm my children. [C]			
23 <sup>a</sup>	I have had more than the usual number of arguments with people. [C]			
24	I have felt peaceful. [S]			
25 <sup>a</sup>	I have had trouble feeling peace of mind. [Y]			
26	I have felt a sense of harmony with myself. [S]			
27	I felt close to my partner (or the person who is my main support). [C]			
28	I was satisfied with my sex life. [C]			
29 <sup>a</sup>	I have felt sad. [Y]			
30	I was able to enjoy life. [S]			
31	I was content with the quality of my life. [S]			
32	My general outlook was good. [S]			
33 <sup>a</sup>	I have had difficulty performing the work or other activities that I usually do (for example, it took extra effort). [Y]			
34 <sup>a</sup>	I have felt downhearted and blue. [Y]			
35 <sup>a</sup>	I have felt worn out. [Y]			
36 <sup>a</sup>	I have been in pain. [P]			
37 <sup>a</sup>	I have been under or felt that I was under strain, stress, or pressure. [Y]			
38	I have been proud of how I've been coping with life. [S]			
39	I accepted myself. [S]			
40	I have been a happy person. [S]			

Source to be cited with any use of this tool: Gehlert et al. (2006) J Clinical Epidemiology 59: 525–533.

PMDD will be dated 1994 or later and 2000 or later for PMS (see [▶ Figure 115-1](#) for overview of this history).

The morbidity of PMS or PMDD may be augmented by stress, and stress-related illnesses may be co-morbid with PMS and PMDD. Stress is a multifaceted construct comprising biopsychosocial and spiritual components. [▶ Stressors](#) are those stimuli perceived as threatening that lead to the stress response. These range from uncontrollable environmental challenges or threats such as war and natural disasters to self-generated mental anguish such as ruminative thinking. The stress response involves activation of the sympathetic nervous system with subsequent increased release of epinephrine (i.e., adrenaline) from the adrenal medulla in an adaptive attempt to deal with the stressor. Additionally, whether acute or sustained, stress activates the [▶ hypothalamic-pituitary-adrenal \(HPA\) axis](#) with resultant release of the glucocorticoid [▶ cortisol](#). This latter response affects the hypothalamic and [▶ pituitary](#) influences over the menstrual cycle. The interactions among the HPA axis and the menstrual cycle are depicted and summarized in [▶ Figure 115-5](#).

Co-morbidity with stress related illnesses is evidenced by reports that women with menstrual problems are more likely to suffer from anxiety, nervousness, and restlessness than asymptomatic women (Strine et al., 2005). In an epidemiological analysis of PMDD in a large community sample, Perkonig et al. (2004) found increased rates of posttraumatic stress disorder among women with PMDD. This provides further evidence for co-morbid stress related illnesses in women with menstrual problems.

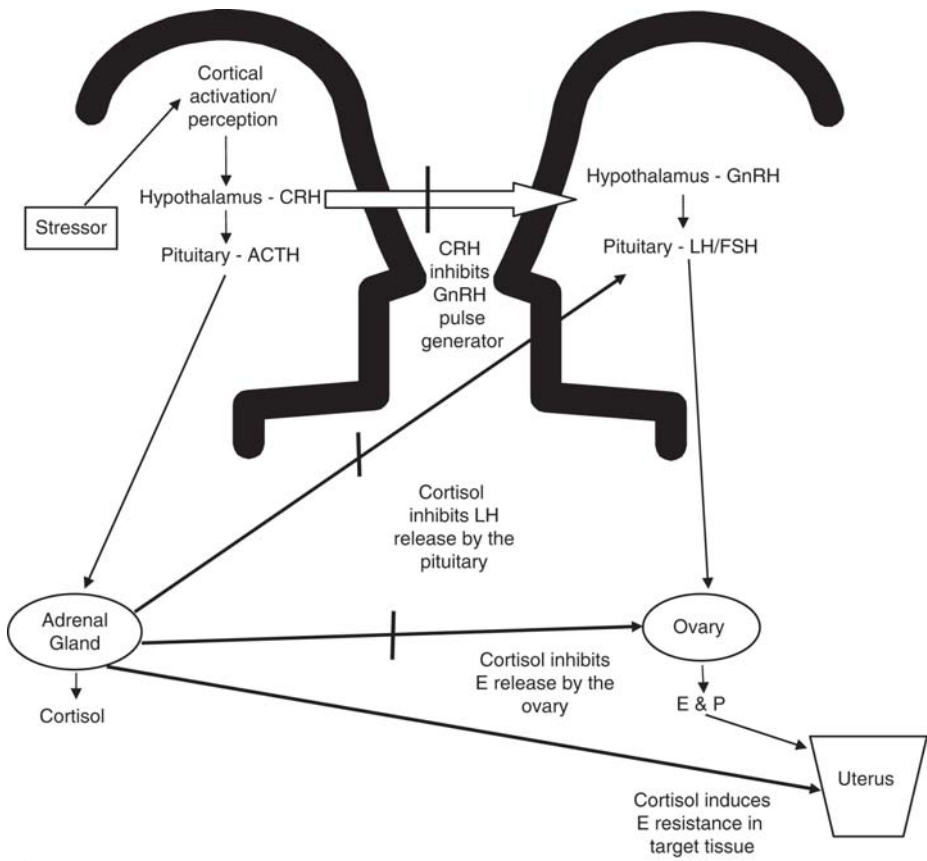
Stress may augment PMS/PMDD symptomatology. In their investigation of 114 women divided into sub-samples with high and low-symptom reports, Lustyk et al. (2004a) found significantly more perceived stress in the high symptom group compared to the low symptom group. Yet, as this study was not longitudinal in design, we can not be sure if stress preceded the symptoms reported, or vice versa. While findings such as these may suggest a bi-directional relationship among perceived stress and symptomatology, more recent studies assessing multivariable models in which perceived stress serves as a mediator argue for its influential effects on symptomatology. In two separate studies investigating the mediating role of perceived stress, Lustyk et al. found that perceived stress partially mediated the relationships of abuse history (2007) and spiritual well-being (2006) with premenstrual symptomatology.

While it seems intuitive that stress can affect premenstrual symptoms, the counter argument remains—premenstrual symptoms may serve as stressors with the potential of creating a negative feedback loop that further exacerbates symptoms. Support for the latter idea comes from laboratory studies where cardiovascular responses to cognitive and/or physical stressors are assessed in women with varying degrees of symptomatology. Current investigations using up-to-date diagnostic criteria are few (i.e., diagnostic criteria from 1994 for PMDD and 2000 for PMS). In one study of this type, Girdler et al. (1998) demonstrated that women with PMDD had significantly greater peripheral resistance and norepinephrine reactivity in response to a mental stressor (i.e., serial addition test) compared to control women. These researchers noted similar response patterns during both [▶ follicular cycle phase](#) and luteal cycle phases. Conversely, Epperson et al. (2007) recently demonstrated a significantly greater acoustic startle response during the luteal phase compared to the follicular phase in women diagnosed with PMDD using 2 months of daily diary reporting.

These cycle-related inconsistencies may be due to an unassessed neuroendocrine relationship, specifically the role of estrogens in the stress response. In a more naturalistic study, Pollard et al. (2007) assessed cardiovascular responses to real life stressors by having women journal about their perceived stress, take their own heart rate and blood pressure, and provide a urine

■ Figure 115-5

Stress, HPA-axis, HPO-axis interactions. The HPO axis regulates the menstrual cycle. GnRH is released in pulsatile fashion from the hypothalamus causing the production and release of LH/FSH from the pituitary. In turn the ovary (ies) release(s) E & P in varying quantities affecting target tissue throughout the body (e.g., uterus). Cortisol, released during stress, can inhibit GnRH, LH, and E release. It can also decrease sensitivity of target tissue to E. *ACTH*, adrenocorticotropic hormone; *CRH*, corticotropin-releasing hormone; *E*, estrogen; *FSH*, follicle stimulating hormone; *GnRH*, gonadotropin-releasing hormone; *HPA*, hypothalamic-pituitary-adrenal; *HPO*, hypothalamic-pituitary-ovary; *LH*, leutinizing hormone; *P*, Progesterone



sample for estrogen analyses. These researchers sought to determine the specific role of estrogen in the stress responses of premenopausal women. Their analyses revealed a positive association between heart rate responses and perceived stress on days when estrogen levels were high (days 11–13 of the cycle) as opposed to the negative association between these variables when estrogen was low (days 4–6 of the cycle). Collectively considered with findings from women with PMS/PMDD, there is no clear and reliable cyclical pattern and as such additional research is needed to elucidate these neuroendocrine responses in women with PMS/PMDD.

## 6 Treatments

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The compounding effects of stress and the unknown etiologies for PMS/PMDD have created roadblocks in the development of validated therapies effective for all symptom patterns and all symptomatic women. This subsequently has created enormous treatment challenges for health care providers. Both PMS and PMDD are diagnoses of exclusion since no consistent biological markers or laboratory tests exist that verify their onset or presence. Currently, the ACOG and American Academy of Family Physicians (AAFP) recommend lifestyle change as the first-line treatment option for PMS (▶ [Table 115-3](#)). However, the most frequent course of treatment is oral contraceptives and/or SSRIs. While it appears that the ACOG recommendation is generally being ignored, it may simply be that meeting this treatment standard proves too difficult given the dearth of information supporting evidence-based behavioral interventions that are successful in producing long lasting lifestyle changes. Also worth noting are latency to treatment effects, which are consistently shorter with pharmacological interventions. According to Steiner et al. (2003), most women with PMDD require SSRIs to successfully manage their symptoms. While side effects to SSRIs exist (e.g., insomnia, gastrointestinal disturbances, decreased libido), research suggests that the improved QOL with managed symptoms in women with PMDD outweighs these concerns (Freeman, 2005). Therefore, while our focus here is on behavioral management, we provide a summary of current pharmacological treatment options in ▶ [Table 115-4](#). We have included in this table information on non-prescription diet aids as some have been shown to have pharmacological effects.

In a recent report, Freeman (2005) writes: “Results of a survey that examined the diagnosis and treatment of PMS in the US indicated that only one in four physicians provided adequate treatment for PMS” (p. 440). This inadequacy is likely influenced by the lack of validated treatment modalities specific for PMS. If the physician’s goal is to use evidenced-based treatments, then it is not surprising that the pharmaceutical route is chosen over the first-line recommendation of the ACOG since consistent supportive evidence from well-controlled clinical trials for behavioral treatments is lacking. Even still, this trend is interesting since drug options that are available are Food and Drug Administration (FDA) approved for PMDD not PMS (see ▶ [Table 115-4](#)). It may be that the combination of unclear diagnostic criteria and the weak evidence base from research are leading physicians to prescribe medications off-label. Additionally, the evidence in support of dietary changes and/or supplement implementation is mixed, with efficacy reports coming from less methodologically rigorous studies than the clinical trials seeking FDA approval for pharmaceuticals. Poor study quality likely contributes to the general lack of understanding of the pharmacological effects of many “natural” diet aids, yet the fact that such effects exist makes one wonder if they belong under the non-pharmacological first-tier of treatment.

Behavioral interventions also lie in this first tier of treatments. Of those behavioral medicine options empirically studied, PMS/PMDD treatment efficacy has been demonstrated with aerobic exercise, cognitive-behavioral therapy (CBT), and systematic relaxation with considerably more support for aerobic exercise. While much of this research was based on the now dated diagnostic criteria, a few factors contributing to the therapeutic efficacy are worth noting. For example, there are different latency to treatment effects for these behavioral medicine modalities. Aerobic exercise seems to exert some positive affects while the person actually engages in the activity. CBT on the other hand can take months for improvements to occur. Given that the treatment recommendation guidelines are to proceed to the next tier of

■ Table 115-3

**Hierarchical treatment guidelines for PMS and PMDD**

Tier 1: Nonpharmacologic treatments
<ul style="list-style-type: none"> <li>• Lifestyle change such as aerobic exercise, diet modification and education (e.g., reduce salt and caffeine intake or add OTC supplements such as magnesium), rest, therapy</li> </ul>
If physical symptoms predominate, treat the specific symptoms
<ul style="list-style-type: none"> <li>• Bloating—spironolactone</li> </ul>
<ul style="list-style-type: none"> <li>• Breast tenderness—danazol, evening primrose oil, spironolactone luteally, vitamin E, chaste berry fruit</li> </ul>
<ul style="list-style-type: none"> <li>• Fatigue/Insomnia: education on sleep hygiene, alter caffeine consumption</li> </ul>
<ul style="list-style-type: none"> <li>• Headaches: OTC pain reducers such as NSAIDs, acetaminophen.</li> </ul>
Tier 2: If patient is diagnosed with PMDD, psychotropic therapy with FDA approved SSRIs (continuous or intermittent therapy).
Tier 3: If the above approaches fail, manipulate the cycle with hormone therapy (e.g., OCs, GnRH agonist therapy).

This table summarizes the current treatment recommendations of the American College of Obstetricians and Gynecologists. These are meant to guide healthcare providers (HP) in making evidence-based treatment choices. HPs are advised to start at Tier 1 and proceed to the next tier if improvements are not observed within 2–4 cycles. If a patient is diagnosed with PMDD, however, HPs can start at Tier 2 as FDA approved drug interventions now exist

Key: *PMS*, Premenstrual Syndrome; *PMDD*, Premenstrual Dysphoric Disorder; *OTC*, over the counter; *NSAIDs*, non-steroidal anti-inflammatory drugs; *FDA*, Food and Drug Administration; *SSRIs*, serotonin specific reuptake inhibitors; *OCs*, Oral contraceptives; *GnRH*, Gonadotropin Releasing Hormone

Note: Compiled in part from these sources: ACOG Practice Bulletin #15 April 2000; Campagne and Campagne, 2007; Johnson, 2004

treatment if symptom improvements are not noted within 2–4 cycles, the long latency to treatment effect for CBT may reduce its therapeutic applicability.

Additional theoretical support for the use of aerobic exercise as a therapeutic modality comes from the ease with which a regimen can be prescribed. Without specialized training or certification as an exercise instructor/trainer, healthcare providers can safely recommend an aerobic program (e.g., brisk walking) that adequately elevates heart rate for a sufficient period of time with a low risk of iatrogenic harm and subsequent injury. This is not the case for CBT, which requires administration by a trained therapist and as such requires referral from the diagnosing physician. Even though PMDD is a mental disorder, the diagnosis is predominately made by primary care physicians (e.g., doctors of Obstetrics & Gynecology) and as such CBT for PMS/PMDD requires additional healthcare coverage or, if healthcare insurance limitations exist, the assumption of costs by the patient.

Correlational evidence demonstrates a positive interrelationship between maintaining an aerobic exercise program and QOL reports (e.g., Lustyk et al., 2004a, b). Yet, the absence of controlled clinical trials employing aerobic exercise as a sole behavioral medicine intervention for women diagnosed with PMS/PMDD under current criteria is a serious limitation in establishing evidenced based therapeutic regimens. Exercise intervention studies that

**Table 115-4**  
**Current pharmacological treatments for PMS/PMDD including supplements recommended as therapeutically effective**

Medication/Supplement	Dose	Type of Supporting Research
Oral Contraceptive (Yaz)	3 mg Drospirenone; 0.02 mg EE	Clinical trial research for PMDD leading to FDA approval
SSRIs		
Fluoxetine	10-20 mg/day	Clinical trial research for PMDD leading to FDA approval Not approved for PMS, used off-label for PMS
Sertraline	25-50 mg/day	Clinical trial research for PMDD leading to FDA approval Not approved for PMS, used off-label for PMS
Calcium	1200-1600 mg/day	Randomized, double-blind, placebo controlled trials with affirmed efficacy
Magnesium	400-800 mg/day	Some randomized trials, and retrospective studies indicating efficacy is likely
Vitamin B6	50-100 mg/day	Some randomized trials, and retrospective studies indicating efficacy is likely
Chasteberry	4-20 mg/day	Some randomized trials, and retrospective studies indicating efficacy is likely
Ginkgo	80 mg/twice daily	Some randomized trials, and retrospective studies indicating efficacy is likely
St. John's wort	300 mg three times/day	Some randomized trials, and retrospective studies indicating efficacy is possible
Black Cohosh	40 mg twice daily	Uncontrolled studies and medical opinions suggest efficacy is possible

This table lists the drugs that are FDA approved for PMDD and the supplements or diet aids that have a treatment effect. Along with the dose range, we provide a general overview of the kind of research that was performed to test the treatment. Randomized, controlled, clinical trials are the most rigorous and well-designed studies for investigating the efficacy of a treatment. They involve having participants assigned to different treatment conditions in a non-systematic way to impose control over various person factors, like motivation to be in the study for example. Those performed over time with prospective measures are considered more rigorous in design than those that use retrospective measures where participants are asked to recall how they felt on some prior date. Uncontrolled studies lack rigor and carry much less weight than those previously described. When a treatment receives FDA approval it is deemed safe and effective having undergone the most rigorous research

Key: Schering/Bayer trade name for Drospirenone & Ethinyl Estradiol (EE). SSRIs, Serotonin Specific Reuptake Inhibitors; Mg, milligrams; FDA, Food and Drug Administration; PMS, Premenstrual Syndrome; PMDD, Premenstrual Dysphoric Disorder  
 Source: Dell, DL (2004). Premenstrual Syndrome, Premenstrual Dysphoric Disorder, and premenstrual exacerbation of another disorder. *Clinical Obstetrics and Gynecology*, 47: 568-575

Adapted with permission from Lippincott, Williams, & Wilkins

employed prospective controlled designs are now dated (e.g., Prior et al., 1987, Steege and Blumenthal, 1993). Most recently Stoddard et al. (2007) performed a cross-sectional study comparing symptom reports in sedentary women and regular exercisers. Unfortunately, PMS/PMDD diagnoses were not made but rather the Moos Menstrual Distress Questionnaire was used to assess subclinical levels of premenstrual distress. This tool provides a broad list of negative symptoms without allowing women to indicate change in severity from whatever is normal for them, a strong criticism of this type of measure (Halbreich et al., 1982). Additionally, the cross-sectional nature of this study makes it questionable whether exercise can serve as a successful behavioral treatment for improving and/or preventing symptoms in women diagnosed with PMS/PMDD under current criteria.

It may be that exercise will prove to be therapeutic for women with PMS/PMDD by decreasing stress and/or improving QOL. While data exists supporting the beneficial role of exercise on stress and QOL (e.g., Lustyk et al., 2004b), the specific effects in women diagnosed with PMS/PMDD under current criteria are not known. Given that decreased HR-QOL is inherent in the diagnosis of these conditions, assessing improvements in this measure seems important for determining treatment efficacy. Yet, as pointed out earlier, it would also be beneficial to assess more QOL domains even if they are only secondarily related to symptoms. It is curious that exercise is recommended for PMS/PMDD with so little supportive evidence. The 2000 ACOG Practice Bulletin states: "Although the evidence base is modest at this time, aerobic exercise can be recommended to all women with PMS because of its numerous other health benefits (p. 4)." How these other health benefits are expected to help these women is not offered.

Furthermore, it is unknown what role, if any, aerobic exercise has on worsening symptoms. For women who may already feel poor, aerobic exercise may exacerbate those feelings. It seems intuitive that premenstrual women with swollen tender breasts, abdominal bloating, headaches, and/or negative affect will have low motivation for aerobic exercise. Furthermore, if their symptoms include fatigue and/or stress, a woman may sense having too little energy for aerobic exercise. One commonly reported barrier to exercise is lack of time. This may be particularly noteworthy for women. In the US 46% of the total workforce are women with 38% holding jobs that are professional in nature (USDLWB, 2007). Furthermore, PMS/PMDD occurs during the reproductive years when many women are adding the roles of wife and mother to their existing jobs outside of the home. These time limitations for self-care along with the stress imposed from the fast paced daily demands known to the working mother likely complicate symptomatology. Adding an exercise schedule to the mix may well increase overall stress rather than reduce it. As stress is associated with increased symptomatology, the addition of exercise may produce a negative cycle of further symptom complaints.

Growing interest in complementary and alternative medical (CAM) treatments for physical and mental illnesses has led to the exploration of options historically ignored by mainline medicine. As of late, treatments such as acupuncture, reflexology, and massage have gained empirical support for their efficacy in reducing premenstrual symptom severity. Yet again, as with exercise, time limitations may apply since each of these remedies requires treatment from a trained professional. An unfortunate limitation to some CAM therapies is that they are not covered or are only minimally covered by medical insurance plans, which potentially add financial stress as well.

These issues provide a theoretical argument for the investigation of sedentary self-care for women with PMS/PMDD. Since new diagnostic criteria for these conditions were published, this area of behavioral medicine is a neglected field of study. For example, what effects, if any, rest, mental imagery training or meditation have on symptoms, perceived stress, and/or QOL in women diagnosed with PMS/PMDD under current criteria is/are unclear. As with other areas of behavioral medicine previously discussed, many sedentary self-care options empirically studied to date have investigated effects using now dated diagnostic criteria and/or involved methodologies that lack the control and rigor needed to appropriately assess treatment effects. One exception is a study by Hernandez-Reif et al. (2000) in which the effects of massage therapy on PMDD symptomatology were compared to systematic relaxation effects. After 5 weeks of 30-min sessions performed twice per week by both groups of women, those that received massage demonstrated reductions in anxiety and somatic symptoms. These improvements were not observed with the sedentary self-care option (i.e., relaxation). As a measure of HR-QOL, these researchers assessed the behavioral change domain of the Menstrual Distress Questionnaire (Moos, 1968) revealing no change in reported decreases in school or job performance, and the avoidance of social activities in either treatment group. It is important to note that only women with the most severe form of PMS (i.e., PMDD) were included in this study and as such additional research is needed to investigate the potential benefits of systematic relaxation on symptoms in women with PMS diagnosed under the current criteria. Time will tell if such sedentary self-care options will have therapeutic efficacy including improved QOL for these women.

## Summary Points

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- Up to 90% of all women report negative symptomatology during the premenstrual phase of the menstrual cycle.
- In 1994, PMDD research criteria were added to the DSM.
- In 2000, the ACOG published diagnostic and treatment guidelines for PMS.
- PMS and PMDD are associated with poor QOL in women.
- PMS and PMDD are associated with increased perceived stress.
- The burden of PMS/PMDD includes missed days at work, increased health care costs, and negative affects on relationships.
- FDA approved treatments for PMDD include SSRI's and the oral contraceptive Yaz.
- Behavioral changes, diet adjustment and/or supplementation are the recommended first-line treatment options for PMS.
- FDA approved pharmacological treatment options for PMDD are reportedly used "off label" to treat PMS.
- Exercise may improve premenstrual symptomatology by reducing stress and improving QOL.
- Prospective randomized controlled-clinical trials assessing the therapeutic efficacy of exercise for PMS/PMDD under current diagnostic guidelines are lacking.
- Investigations of sedentary self-care options for PMS/PMDD are needed.

### How to Use the Daily Record of Severity of Problems (DRSP) Short Form to Assess DSM-IV Criteria for PMDD

These instructions and the following DSM-IV research criteria for premenstrual dysphoric disorder are **intended for use by your clinician**. These will assist your clinician in interpreting your two months of ratings on the DRSP.

1. During the mid-follicular phase (days 6-10 after the onset of menses), does the patient have an average daily symptoms rating score greater than 3 (mild) on any of the symptoms, i.e., is there any evidence of an unrelated disorder?

Some clinicians do not count increased appetite (8) in obese patients, or insomnia (9) for those with good reasons (e.g., infants or ill children), or pain from a physical illness (11). Note here if this patients has "excused" symptoms. \_\_\_\_\_

\_\_\_\_\_ If greater than mild symptoms during the mid-follicular phase (and they are not "excused"), patient does not meet PMDD criteria – STOP

\_\_\_\_\_ If essentially symptom free or has only "excused symptoms" during the mid-follicular phase, proceed to step 2.

2. During the week prior to menses, does the patient score at least 4 (moderate) for at least 2 days on one or more of the following:

	Yes/No		Yes/No
Depression	_____	Mood lability	_____
Anxiety	_____	Anger/irritability	_____

\_\_\_\_\_ If all 'No,' does not meet criteria – STOP

\_\_\_\_\_ If at least one 'Yes,' proceed to step 3

3. During the week prior to menses, does the patient score at least 4 (moderate) for at least two days on at least FIVE of the symptoms (1 through 11) listed?

\_\_\_\_\_ If NO, does not meet criteria – STOP

\_\_\_\_\_ If YES, has sufficient symptoms and severity, proceed to step 4

4. During the week prior to menses, does the patient have scores of at least 4 (moderate) for at least 2 days on at least one of the following impairment items?

	Yes/No
Work, school, home, daily routine	_____
Hobbies, social activities	_____
Relationships with others	_____

\_\_\_\_\_ If all 'No,' does not meet criteria – STOP

\_\_\_\_\_ If at least one 'Yes,' proceed to step 5

5. Do you agree with the daily ratings assessment (i.e., does the patient meet criteria for Premenstrual Dysphoric Disorder)? Yes \_\_\_\_\_ No \_\_\_\_\_  
If No, specify reason(s) \_\_\_\_\_

If Yes, is this the first or second cycle of ratings that meet criteria?

\_\_\_\_\_ First cycle      \_\_\_\_\_ Second cycle

Patient Name \_\_\_\_\_ Date \_\_\_\_\_ Clinician Name \_\_\_\_\_

**DSM-IV research criteria for premenstrual dysphoric disorder**

This DSM-IV research criteria for premenstrual dysphoric disorder page and the instructions for using the Daily Record of Severity of Problems are **intended for use by your clinician**. These will assist your clinician in interpreting your two months of ratings on the DRSP.

- A. In most menstrual cycles during the past year, five (or more) of the following symptoms were present for most of the time during the last week of the luteal phase, began to remit within a few days after the onset of the follicular phase, and were absent in the week postmenses, with at least one of the symptoms being either (1), (2), (3), or (4):
- (1) markedly depressed mood, feelings of hopelessness, or self-deprecating thoughts
  - (2) marked anxiety, tension, feelings of being "keyed up," or "on edge"
  - (3) marked affective lability (e.g., feeling suddenly sad or tearful or increased sensitivity to rejection)
  - (4) persistent and marked anger or irritability or increased interpersonal conflicts
  - (5) decreased interest in usual activities (e.g., work, school, friends, hobbies)
  - (6) subjective sense of difficulty in concentrating
  - (7) lethargy, easy fatigability, or marked lack of energy
  - (8) marked change in appetite, overeating, or specific food cravings
  - (9) hypersomnia or insomnia
  - (10) a subjective sense of being overwhelmed or out of control
  - (11) other physical symptoms, such as breast tenderness or swelling, headaches, joint or muscle pain, a sensation of "bloating," weight gain

**Note:** In menstruating females, the luteal phase correspond to the period between ovulation and the onset of menses, and the follicular phase begins with menses. In nonmenstruating females (e.g., those who have had a hysterectomy), the timing of luteal and follicular phases may require measurement of circulating reproductive hormones.

- B. The disturbance markedly interferes with work or school or with usual social activities and relationships with others (e.g., avoidance of social activities, decreased productivity and efficiency at work or school).
- C. The disturbance is not merely an exacerbation of the symptoms of another disorder, such as Major Depressive Disorder, Panic Disorder, Dysthymic Disorder, or a Personality Disorder (although it may be superimposed on any of these disorders).
- D. Criteria A, B, and C must be confirmed by prospective daily ratings during at least two consecutive symptomatic cycles. (The diagnosis may be made provisionally prior to this confirmation.)

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