

## A Review on Premenstrual Syndrome

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**ABSTRACT:** This activity is a review of the existing literature on premenstrual syndrome (PMS). It summarizes the management of PMS by outlining the importance of taking a comprehensive history and performing a detailed physical examination and makes a note of necessary diagnostic tests to be done to rule out other conditions that may present with similar symptoms, A woman has premenstrual syndrome (PMS) if she complains of recurrent psychological and/or physical symptoms occurring during the luteal phase of the menstrual cycle, and often resolving by the end of menstruation. Symptom severity can vary between women. Premenstrual symptoms occur in 95% of women of reproductive age. Severe, debilitating symptoms occur in about 5% of those women. There is no consensus on how symptom severity should be assessed for PMS, which has led to the use of a wide variety of symptom scores and scales, thus making it difficult to synthesise data on treatment efficacy. The cyclical nature of the condition also makes it difficult to conduct RCTs.

Index terms - Premenstrual Syndrome Symptoms, Complication, Management

### I. INTRODUCTION

Large number of reproductive age women experience at least some form of menstrual symptoms. Premenstrual syndrome (PMS) is characterized by physical, affective, and behavioural symptoms that significantly impair the daily lives of women, including work and personal activities, during the luteal phase and spontaneously resolve within a few days of the onset of menstruation. PMS is the changes in mood, emotions, physical health, and behavior that can occur between ovulation and the start of your period. It typically lasts until a few days after your period begins and can have a negative impact on your life. The etiology of PMS is complex. Ovarian reproductive steroids (Estradiol and progesterone) are considered pathogenetic effectors, but the key feature seems to be an altered sensitivity of the GABA central inhibitory system to allopregnanolone, a neurosteroid derived from progesterone produced after ovulation. Also, a reduced availability of serotonin seems to be involved. New insights point to a role

for genetic and epigenetic modifications of hormonal and neurotransmitter pathways, and inflammation is the potential link between peripheral and neurological integrated responses to stressors. Thus, new therapeutic approaches to PMS include inhibition of progesterone receptors in the brain (i.e., with ulipristal acetate), reduced conversion of progesterone to its metabolite allopregnanolone with dutasteride, and possible modulation of the action of allopregnanolone on the brain GABAergic system with sepranolone. Further research is needed to better understand the interaction between peripheral inflammatory molecules (cytokines, interleukins, C-reactive protein, and reactive oxygen species) and the brain neurotransmitter systems in women with PMS. If confirmed, neuroinflammation could lead both to develop targeted anti-inflammatory therapies and to define prevention strategies for the associated chronic inflammatory risk in PMS. Finally, the observed association between premenstrual disorders and psychological diseases may guide prompt and adequate interventions to achieve a better quality of life

## II.EPIDERMOLOGY

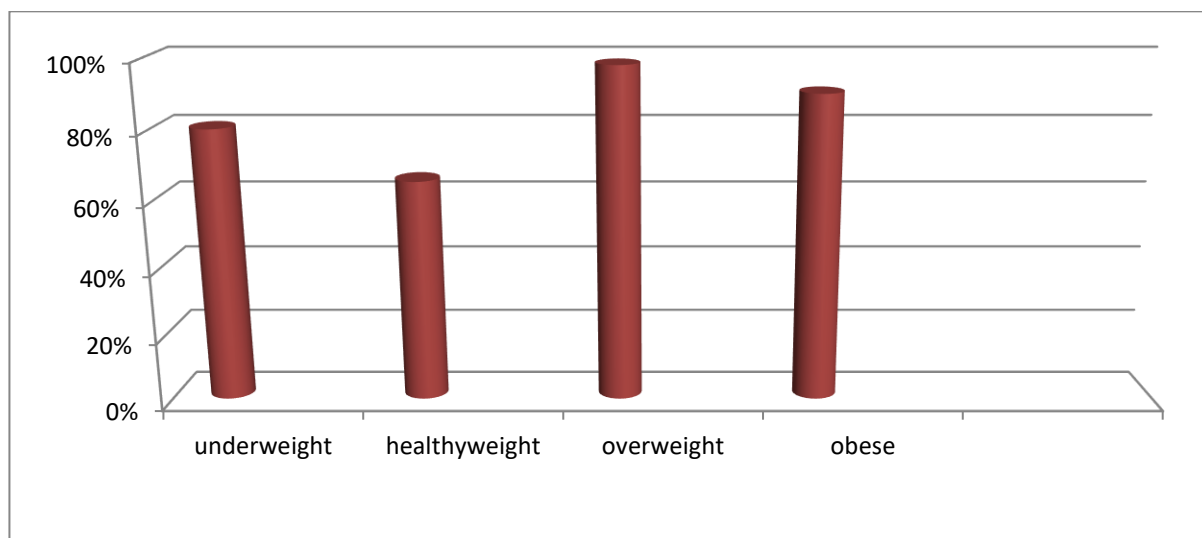
About 80% of women report at least one physical or psychiatric symptom during the luteal phase of their menstrual cycle; however, most do not report significant impairment in their daily life.<sup>5</sup> In a study of 2,800 French women, about 12% met the diagnostic criteria for PMS, and 4% reported severe symptoms. The prevalence of PMS is not associated with age, educational achievement, or employment status. Symptom persistence and severity tend to fluctuate. One study found that only 36% of women who were diagnosed with PMS continued to meet the diagnostic criteria one year later. Women who gained weight or had a stressful event in the past year are more likely to be diagnosed with PMS. Fewer patients meet the more rigorous diagnostic criteria for PMDD; its prevalence is 1.3% to 5.3%.

## CAUSES

The causes of premenstrual syndrome is uncertain. Since PMS symptoms occur simultaneously with the hormonal fluctuations of the menstrual cycle, hormonal disproportion like estrogen surplus and progesterone deficiency have been proposed. Symptoms are also associated with serotonin to link as a key etiological factor. Estrogen comprises of three major hormones: estrone, estradiol, estriol, estradiol being the is the most potent. Estrogen levels that fluctuate during the luteal phase are what is responsible for women's mood changes. Clinical trials have shown that serotonin precursors significantly increases between days 7 to 11 and 17 to 19 of the menstrual cycle. This indicates that PMS is closely associated with mood disorders through estrogen-serotonin regulation. According to the molecular biology studies, the decreased estrogen causes the hypothalamus to release norepinephrine, which triggers a decline in acetylcholine, dopamine, and serotonin that leads to insomnia, fatigue, depression, which are common

symptoms of PMDD and PMS. A study from Egypt revealed the positive association between PMS and excess intake of sweet-tasting food items. It also showed that other factors, such as intake of junk food and coffee, were significantly associated with PMS. Thus, making it evident that lifestyle factors have a significant association with PMS and PMDD. Cheng *et al.* did a similar study among women university students for assessing the factors associated with PMS and revealed that dietary factors such as consumption of fast food, drinks containing sugar, deep-fried foods, and lifestyle factors such as less habitual exercise and poor sleep quality is significantly associated with PMS.

#### PREVALENCE OF PREMENSTRUAL SYNDROME IN VARIOUS WEIGHT STATUS FOR ADOLSCENE GIRLS



#### IV. SYMPTOMS

While PMS often involves mild or moderate symptoms that don't majorly affect daily life, symptoms *can* be severe enough to impact your everyday activities and overall well-being. If you have PMS, you'll experience symptoms consistently before each menstrual period. You might experience only some of the symptoms below, or several, but PMS typically involves at least a few different symptoms.

**Table 1; Premenstural syndrome symptoms**

s.no	RELATED TO	SYMPTOMS
1	Fluid Retention	<i>Bloating, Weight gain, Oedema, Reduced urination</i>
2	<i>Pain</i>	<i>Pelvic pain, Mastalgia (breast tenderness), Headache, Joint &amp; muscular pain, Backache.</i>
3	<i>Psychological</i>	<i>Irritability, anger, depressed mood, crying and tearfulness, anxiety, tension, mood swings, lack of concentration, confusion, forgetfulness, restlessness, loneliness, decreased self-esteem, tension.</i>
4	<i>Behavioural</i>	<i>Lack of consciousness, Absenteeism ,Suicidal tendency &amp; criminal acts Aggression ,Indecision</i>
5	<i>Nervous system</i>	<i>Insomnia ,Hypersomnia, Anaemia ,Food cravings, Fatigue, Pricking/tingling, sensation ,Lethargy, Agitation ,Change in sex drive, Clumsiness, Dizziness or vertigo</i>
6	<i>Gastrointestinal</i>	<i>Nausea, Diarrhoea, Palpitations, Sweating</i>
7	<i>skin</i>	<i>Acne, Oily skin, Greasy or dry hair</i>

## V. HISTORY AND PHYSICAL PROBLEM OF PMS

Symptoms of premenstrual syndrome can range from mild to moderate to severe. These symptoms may include changes in appetite, weight gain, abdominal pain, back pain, low back pain, headache, swelling and tenderness in the breasts, nausea, constipation, anxiety, irritability, anger, fatigue, restlessness, mood swings and crying. The duration of affective symptoms can vary from a few days to 2 weeks. Symptoms often worsen a week before and spike two days before menstruation begins. Alcohol drinking is associated with a moderate increase in the risk of PMS. As such, documenting the history of alcohol consumption can help provide counseling to the patient and help alleviate the symptoms accordingly.

## VI. DIAGNOSIS

To satisfy the diagnostic criteria of PMS, symptoms must appear during the luteal phase and disappear within a few days of the beginning of menstruation. It is optimally derived by a prospective collection of symptom and clinical information rather than by a retrospective recall. The Daily Record of Severity of Problems (DRSP) allows for an accurate diagnosis of PMS. This chart is used to document the frequency and intensity of emotional and physical symptoms associated with menstrual cycle.

### DIAGNOSTIC CRITERIA FOR PRE MENSTRUAL SYNDROME

The main goal of treatment for women with PMS is to alleviate and improve symptoms and enable normal daily life. Various approaches, ranging from lifestyle measures (exercise and relaxation techniques), to cognitive behavioral therapy (CBT) and medications (SSRIs), and/or combined estrogen-progestin contraceptives (COC), are utilized for treatment of PMS. More severe PMS can be treated with a number of medications. But many of these medications haven't been approved for the treatment of PMS, and they can have side effects:

- **Hormone medications** like the birth control pill or hormone patches affect women's hormone levels and lead to an improvement in PMS or PMDD.
- **Antidepressants:** SSRIs (selective serotonin reuptake inhibitors) can help reduce severe psychological problems caused by PMS or PMDD.
- **Painkillers** can effectively relieve severe period pain and are usually well tolerated. There is very little research on whether they also help in PMS, though.

Women who have problems with PMS-related water retention can take **diuretics (water pills)**

If PMS causes psychological problems, cognitive behavioral therapy (CBT) is an option. But it isn't clear whether it helps in PMS.

### DIFFERENT DIAGNOSIS

Several clinical entities can have a manifestation similar to premenstrual syndrome. They include psychiatric conditions like substance abuse disorders, affective disorder (e.g., depression, anxiety, dysthymia, panic), anemia, anorexia and bulimia, gynecological conditions like endometriosis, dysmenorrhea, medical conditions like hypothyroidism and others like oral contraceptive pill (OCP) use, or perimenopause. hence it is essential to gather an effective history and perform a comprehensive physical examination and rule out these condition.

## RISK FACTOR OF PMS

The role of genetic factors in the predisposition to PMS has been an active and interesting area for many researchers yet definitive conclusions have not emerged. Some studies suggest a possible association with estrogen receptor alpha (ESR1) gene (13-15). In one report, cells from women with and without PMS appeared to show different response patterns to the components of the ESC/E (Z) complex containing the ESR1 gene. Other risk factors for PMS development include lower levels of education and smoking, history of traumatic events or anxiety disorder, and higher daily difficulty scores .

## COMPLICATIONS

Untreated PMS are likely to affect sexual life, thereby leading to a higher level of sexual distress, which can, in turn, lead to relationship problems and more psychological issues. There is also evidence that relates the PMS to increased suicidal risk in hormone-sensitive female.

## MANAGEMENT

Treatment goals for PMS are to ameliorate or eliminate symptoms, reduce their impact on activities and interpersonal relationships, and minimize adverse effects of treatment. Although numerous treatment strategies are available, few have been adequately evaluated in randomized, controlled trials. Furthermore, research findings can be difficult to apply because of the variability of inclusion criteria and outcome measures in clinical trials, the lack of studies directly comparing treatment modalities, and the high response rate to placebo (25 to 50 percent). Initially, all patients with PMS should be offered nonpharmacologic therapy. Medication should be offered to patients with persistent symptoms of PMS and those who meet criteria for PMDD. Surgical treatment, principally hysterectomy plus bilateral oophorectomy, is controversial because it is irreversible and associated with significant risks. Surgery may be considered in severely affected patients who fail to respond to other therapies and also have significant gynecologic problems for which surgery would be appropriate.

## NONPHARMACOLOGICAL THERAPY

Nonpharmacologic interventions for PMS include patient education, supportive therapy, and behavioral changes. Women who have been educated about the biologic basis and prevalence of PMS report an increased sense of control and relief of symptoms.

. 1)Life style changes

- Dietary modification

- Exercise

- Sleep hygiene

- Stress reduction

2) Psychotherapy and group support

- Supportive therapy and patient education

- Cognitive behavioral therapy (CBT)

3) Nutritional supplements

- Vitamin B6

- Vitamin E

- Calcium

- Magnesium

- Tryptophan

4) Herbal products

- Chaste berry (Vitex Agnus-castus)

- St. John's wort (Hypericum perforatum)

- Black Cohosh (Cimicifuga racemosa)

- Evening primrose oil

## II. PHARMACOLOGICAL TREATMENT

Nonpharmacologic measures should be monitored at least every three months. If symptoms are not adequately relieved, the addition of pharmacologic treatment should be considered ([Table 5](#)).<sup>19,20</sup> Medications are given to treat specific symptoms or alter the menstrual cycle. Treatment should be individualized to target the most troublesome symptoms in each patient.

1) Selective serotonin reuptake inhibitors

2) Other Serotonergic antidepressants

3) Anxiolytics

4) Hormonal therapy

## 5) Miscellaneous pharmacologic interventions

### III. Surgical Treatment

#### 1) Hysterectomy

## CONCLUSION

PMS and PMDD symptoms compromise the well-being of women and have a negative impact on quality of life. Definitive diagnosis is based on prospective self-reporting of the symptoms. Most cases are unrecognized as the presence of the symptoms is not usually questioned during gynecological exams and routine check-ups. Exercise, a healthy diet rich in vitamins and minerals and CBT are the first-line treatment modalities in mild cases. SSRIs and/or COCs are first-line pharmacologic treatments as they are effective in the majority of the women with PMS and PMDD symptoms. Alternative hormonal therapies can be utilized when the standard therapies fail. Surgery is the last resort and should not be considered until all the alternative medical treatment modalities have been tried and are ineffective.

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