

Herbal Approach in Premenstrual Syndrome – A Review

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Abstract: Premenstrual Syndrome (PMS) is a common phenomenon experienced by many women in the days leading up to their menstrual cycle. The physical and emotional symptoms can range from mild discomfort to severe disruptions in daily life. While conventional treatments exist, an increasing number of individuals are turning to herbal approaches to find relief from PMS symptoms such as Chaste Tree (*Vitex agnus-castus*), Evening Primrose Oil (*Oenothera biennis*), Dong Quai (*Angelica sinensis*), Ginger (*Zingiber officinale*). In addition to herbal remedies, lifestyle and dietary adjustments play a crucial role in managing PMS. A diet rich in whole foods, particularly fruits, vegetables, and whole grains, can contribute to overall well-being. Regular exercise has been shown to reduce PMS symptoms by promoting circulation and releasing endorphins, the body's natural mood elevators. The herbal approach to managing PMS offers a natural and holistic alternative for women seeking relief from the challenges of premenstrual syndrome. While individual responses to herbal remedies may vary, many women find comfort and support in the wisdom of nature.

Keywords: PMS, herbals, treatment, etiology, pathology.

INTRODUCTION

Premenstrual Syndrome (PMS) refers to a combination of physical and emotional symptoms that many women experience in the days or weeks leading up to their menstrual period. The symptoms vary widely among individuals but commonly include mood swings, irritability, bloating, fatigue, and changes in sleep patterns [1].

The exact cause of PMS is not well understood, but it is thought to be related to hormonal fluctuations that occur during the menstrual cycle, particularly changes in estrogen and progesterone levels. These hormonal shifts can affect neurotransmitters in the brain, such as serotonin, which plays a role in mood regulation [2].

It's important to note that while many women experience mild PMS symptoms, some may have more severe symptoms that significantly impact their daily lives. In such cases, the condition is sometimes referred to as premenstrual dysphoric disorder (PMDD) [3].

However, Premenstrual Syndrome (PMS) is a group of physical and emotional symptoms that many women experience in the days before their period starts. The symptoms of PMS can vary from woman to woman and can include both physical and emotional symptoms.

Physical symptoms [4, 5]

Breast Tenderness: Many women experience breast tenderness or swelling during the premenstrual phase.

Abdominal Bloating: Fluid retention can lead to abdominal bloating, causing discomfort.

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Headaches: Some women may experience headaches or migraines as part of PMS symptoms.

Joint and Muscle Pain: Pain in the joints and muscles, often referred to as PMS-related myalgia, can occur.

Fatigue: Increased tiredness and fatigue are common physical symptoms during PMS.

Changes in Appetite: Cravings for certain foods or changes in appetite, including increased hunger, may occur.

Acne: Skin-related issues, including acne or worsened complexion, can be linked to hormonal changes during PMS.

Digestive Issues: Some women may experience constipation, diarrhea, or other digestive disturbances.

Sleep Disturbances: Difficulty sleeping or disrupted sleep patterns can be part of PMS symptoms.

Menstrual Cramps: While menstrual cramps are associated with the menstrual period, they can sometimes start during the premenstrual phase.

PMDD signs and symptoms include depression, mood swings, anger, anxiety, feeling overwhelmed, difficulty concentrating, irritability, and tension [6, 7].

Emotional symptoms

Premenstrual Syndrome (PMS) refers to a set of physical and emotional symptoms that occur in the luteal phase of the menstrual cycle, typically in the week or two before menstruation. Emotional symptoms can vary widely among individuals, and not everyone experiences them. Some common emotional symptoms of PMS include [8-10].

Mood Swings: Women with PMS often experience mood swings, ranging from irritability and anxiety to sadness or even anger.

Depression: Feelings of sadness or depression may intensify during the premenstrual phase.

Anxiety: Some women may experience heightened anxiety or nervousness during PMS.

Irritability: Increased irritability is a common emotional symptom, making it challenging to cope with everyday stressors.

Fatigue: Emotional symptoms can contribute to increased fatigue and a sense of low energy.

Difficulty Concentrating: PMS may impact cognitive function, leading to difficulties in concentration and memory.

Appetite Changes: Emotional symptoms can sometimes be associated with changes in appetite, including increased cravings for certain foods.

Insomnia or Sleep Disturbances: Some women may experience difficulty sleeping or disturbances in their usual sleep patterns.

Etiology

Premenstrual Syndrome (PMS) is a multifactorial disorder influenced by various physiological and psychological factors. The etiology of PMS is complex and not fully understood, making it challenging to pinpoint a singular cause. However, certain factors contribute to the manifestation of symptoms during the luteal phase of the menstrual cycle [11, 12].

Hormonal Fluctuations: One prominent factor in PMS etiology is hormonal fluctuations, specifically variations in estrogen and progesterone levels. The intricate balance between these hormones is crucial for the regulation of mood, energy, and physical well-being. Any disruption in this balance during the menstrual cycle can contribute to the onset of PMS symptoms [13].

Neurotransmitter Dysregulation: The involvement of neurotransmitters, such as serotonin and gamma-aminobutyric acid (GABA), is implicated in PMS. Changes in hormone levels can impact the synthesis and function of these neurotransmitters, influencing mood, anxiety, and irritability. Herbal remedies in the context of PMS often target these neurotransmitter pathways to modulate symptoms [14].

Inflammatory Processes: Inflammation has emerged as a potential contributor to PMS symptoms. The cyclical nature of inflammation, particularly in the reproductive organs, may intensify physical discomfort and mood disturbances. Herbal interventions with anti-inflammatory properties, like Ginger and Evening Primrose Oil, could address this aspect of PMS etiology [15, 16].

Psychosocial Factors: Psychosocial factors, including stress, play a crucial role in exacerbating PMS symptoms. Chronic stress can impact hormonal balance and exacerbate emotional and psychological manifestations of PMS. Herbal approaches, with their potential adaptogenic and anxiolytic effects, may offer a holistic response to these psychosocial contributors [17, 18].

Pathology of PMS [19-21]

Premenstrual Syndrome (PMS) refers to a group of physical and emotional symptoms that occur in the luteal phase of the menstrual cycle, typically in the two weeks before menstruation starts. While PMS is common, its exact cause is not fully understood, and various factors may contribute to its development. The symptoms of PMS can vary widely and may include mood swings, irritability, bloating, breast tenderness, fatigue, and changes in appetite. In some cases, these symptoms can be severe and significantly impact a woman's quality of life. The pathology of PMS is thought to involve hormonal fluctuations, particularly changes in estrogen and progesterone levels during the menstrual cycle. Serotonin, a neurotransmitter that plays a role in mood regulation, is also believed to be involved. Additionally, factors such as genetics, lifestyle, and stress can contribute to the development and severity of PMS symptoms [19-21].

Premenstrual syndrome (PMS) and premenstrual dysphoric disorder are set in motion by hormonal changes following ovulation. The symptoms may manifest during the early, mid, or late luteal phase and aren't linked to specific concentrations of any particular gonadal or non-gonadal hormone. Despite the absence of conclusive evidence supporting a hormonal abnormality, the symptoms of these premenstrual disorders are correlated with the production of progesterone by the ovaries [22].

Sign and symptoms of PMS

Premenstrual Syndrome (PMS) is characterized by a diverse array of signs and symptoms that impact various aspects of an individual's life. These manifestations typically surface during the luteal phase of the menstrual cycle and can persist until the onset of menstruation. The signs and symptoms of PMS can be broadly categorized into physical, emotional, and psychological domains [23-25].

- **Physical Symptoms:** Physical symptoms of PMS encompass a range of discomforts, including bloating, breast tenderness, headaches, and changes in appetite. Individuals may also experience fatigue, muscle aches, and joint pain. These symptoms can significantly affect daily activities and quality of life.
- **Emotional Symptoms:** Emotional symptoms in PMS often manifest as mood swings, irritability, and heightened emotional sensitivity. Anxiety and feelings of tension may escalate during the luteal phase, impacting interpersonal relationships and overall emotional well-being. For some individuals, these emotional symptoms can be severe and debilitating.
- **Psychological Symptoms:** Psychological symptoms of PMS may include depression, difficulty concentrating, and a general sense of feeling overwhelmed. The cyclical nature of these symptoms can pose challenges in managing daily responsibilities and may contribute to a sense of emotional imbalance.

However, signs and symptoms of PMS can be summarized in Figure 1.

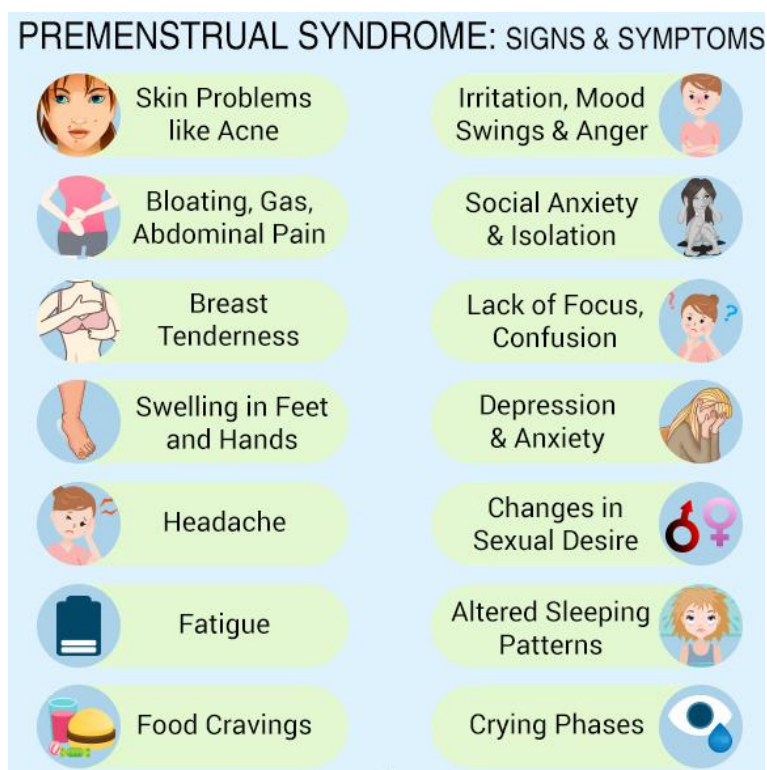


Figure 6: Signs and symptoms of PMS [26]

Herbal Approaches and Their Impact on PMS

Chaste Tree (*Vitex agnus-castus*):

The chaste tree, scientifically named *Vitex agnus-castus*, is a deciduous shrub adorned with summer-blooming clusters of purple flowers. Commonly referred to as vitex, its leaves share a resemblance with those of the marijuana plant (*Cannabis sativa*), arranged in a palm-like fashion with five leaflets. Emitting a fragrance reminiscent of sage, the plant's midsummer purple flower clusters resemble those of the butterfly bush (*Buddleja* spp.). The black fruit holds four peppercorn-like seeds, occasionally utilized to add flavor to food [27-29], figure 2 shows the Chaste Tree (*Vitex agnus-castus*).



Figure 2: Chaste Tree (*Vitex agnus-castus*) [30]

Chaste Tree, a popular herbal remedy for PMS, is believed to influence hormonal balance by acting on the pituitary gland. It may modulate prolactin levels, contributing to the overall regulation of reproductive hormones. By addressing hormonal fluctuations, Chaste Tree addresses a key aspect of PMS etiology [31].

Evening Primrose Oil (*Oenothera biennis*)

Oenothera biennis, commonly known as evening primrose, thrives in diverse global regions. Its moniker, "evening primrose," stems from the distinctive yellow blooms that unfurl during the evening hours. Extracted from the seeds of *O. biennis*, evening primrose oil, also known as 'EPO,' is a prized fixed oil. The oil's esteem is grounded in its chemical composition, constituting up to 25% of *O. biennis* [32, 33].

Rich in essential fatty acids, evening primrose oil boasts two types of omega-6-fatty acids: linoleic acid (60%–80%) and γ -linoleic acid (8%–14%). These fatty acids are deemed essential as the body does not synthesize them internally. The efficacy of evening primrose oil extends to the management of various conditions, including atopic eczema, mastalgia, premenstrual syndrome (PMS), diabetic neuropathy, multiple sclerosis, and rheumatoid arthritis [33].



Figure 3: Evening Primrose Oil (*Oenothera biennis*) [34]

Ginger (*Zingiber officinale*)

Ginger, scientifically known as *Zingiber officinale*, is a flowering plant whose rhizome, or underground stem, is widely used as a spice and folk medicine. It belongs to the family Zingiberaceae and is native to Southeast Asia. The plant has green leaves and yellowish-green flowers [35].

Ginger has been a part of traditional medicine for centuries, known for its potential health benefits. It contains bioactive compounds, such as gingerol, which contribute to its medicinal properties. Some of the reported health benefits of ginger include anti-inflammatory and antioxidant effects, relief from nausea, and potential benefits for digestive health [36]. Figure 4 shows the Ginger (*Zingiber officinale*) plant with its roots.



Figure 4: Ginger (*Zingiber officinale*) [37]

Ginger, with its anti-inflammatory and analgesic effects, may directly impact the inflammatory component of PMS etiology. By reducing inflammation, it has the potential to alleviate physical discomfort and contribute to the broader understanding of PMS pathophysiology [38].

Dong Quai (*Angelica sinensis*)

Dong Quai, traditionally used in Chinese medicine for female reproductive health, could potentially modulate hormonal balance. While more research is needed, its historical use suggests an influence on reproductive hormones, addressing a key aspect of PMS etiology [39]. Figure 4 shows the Dong Quai plant.



Figure 5: Dong Quai (*Angelica sinensis*) plant [40]

Dong Quai, also known as *Angelica sinensis*, is often discussed in the context of PMS (Premenstrual Syndrome) due to its traditional use in Chinese medicine for women's health. However, it's important to note that while there is some anecdotal evidence and traditional use, scientific research on Dong Quai's effectiveness in managing PMS is limited [41].

Some studies suggest that Dong Quai may have potential benefits for women's health, including alleviating menstrual symptoms. For example, a study published in the journal "PLOS One" in 2013 that was carried out by Vecsler *et al.*, 2013 investigated the effects of a herbal formula containing Dong Quai on PMS symptoms. The researchers reported improvements in mood and physical symptoms, but the study had limitations, and more research is needed to draw definitive conclusions [42].

Chamomile:

Chamomile, an herb belonging to the Asteraceae plant family, is cultivated globally. Displaying a daisylike structure with petite white petals, a yellow center, and a slender stem, it can reach heights of nearly 3 feet [43].

For millennia, chamomile has served as a traditional remedy, renowned for its ability to soothe anxiety and alleviate stomach discomfort. In ancient civilizations such as Rome, Greece, and Egypt, dried chamomile flowers and their essential oils were employed as medicinal herbs [44].

In contemporary herbal medicine, two main types of chamomile remain prevalent: German chamomile (*Matricaria chamomilla*), widely utilized, and Roman or English chamomile (*Chamaemelum nobile*) [43, 44].

Premenstrual syndrome (PMS) manifests with a diverse range of physical and psychological symptoms. Among the herbal supplements explored for alleviating PMS symptoms, chamomile emerges as a noteworthy herbal remedy. The primary objective of this review was to assess the effectiveness of chamomile in treating PMS [45]. Figure 6 shows the *Chamaemelum* flowers.

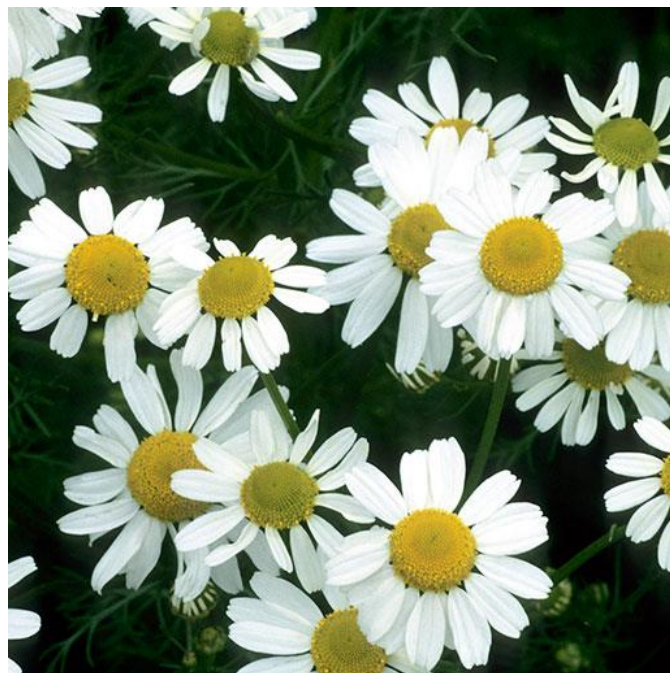


Figure 6: Chamaemelum plant [46]

Saffron

Saffron, obtained from the flower of *Crocus sativus*, often referred to as the "saffron crocus," consists of vibrant crimson stigma and styles, known as threads. These threads are harvested and dried, primarily employed as a seasoning and coloring agent in food [47].

Saffron can be beneficial in alleviating PMS-related symptoms such as anxiety, low mood, irritability, and mood swings [48].



Figure 7: Saffron flowers [48]

Pharmacological treatment of PMS

The pharmacological treatment of Premenstrual Syndrome (PMS) involves various approaches aimed at alleviating specific symptoms. It's important to note that treatment may vary based on the severity of symptoms and individual patient response [49-52].

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

NSAIDs such as ibuprofen or naproxen can help relieve pain and discomfort associated with PMS.

Hormonal Therapies

Oral contraceptives containing both estrogen and progestin are often prescribed to regulate hormonal fluctuations and reduce symptoms [53].

Selective Serotonin Reuptake Inhibitors (SSRIs)

SSRIs, such as fluoxetine, sertraline, or paroxetine, are commonly used to address mood-related symptoms. They can be taken throughout the menstrual cycle or specifically in the luteal phase [54].

Gonadotropin-Releasing Hormone (GnRH) Agonists

In severe cases, GnRH agonists like leuprolide may be considered to suppress ovarian function and reduce symptoms. However, this is usually a short-term solution due to potential side effects [55].

Nutritional Supplements:

Calcium and vitamin D supplements have been explored for their potential in reducing PMS symptoms [56, 57].

CONCLUSIONS

- ✓ Premenstrual syndrome (PMS) is a combination of physical and emotional symptoms that many women experience after ovulation and before the start of their menstrual period
- ✓ The symptoms may range from mild to severe and can include mood swings, tender breasts, food cravings, fatigue, irritability, and depression
- ✓ PMS affect most of women, and it is believed to occur due to the falling levels of estrogen and progesterone after ovulation.
- ✓ PMS symptoms usually are physical, emotional and psychological and affect their daily activities with signs of premenstrual dysphoric disorder (PMDD).

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