

ROLE OF NATURAL INGREDIENTS IN EASING PREMENSTRUAL SYNDROME**Janhavi Khande^{1*}, Shraddha Pimpalkar² and Suchita Gupta³**¹Final Year Student, MSc Clinical Research, Institute of Clinical Research India (ICRI), Ajeenkya D Y Patil University, Pune, India.²Final Year Student, MSc Clinical Research, Institute of Clinical Research India (ICRI), Ajeenkya D Y Patil University, Pune, India.³Assistant Professor, Institute of Clinical Research India (ICRI), Ajeenkya D Y Patil University, Pune, India.***Corresponding Author: Janhavi Khande**

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INTRODUCTION

Most women of reproductive age feel physical discomfort or distress in the weeks leading up to menstruation. Symptoms are normally mild, although they can be severe enough to prevent people from going about their everyday lives. This syndrome is characterised by a slew of physical, behavioural, and psychological changes that some women experience between a week and a few days prior to menstruation.^[1] Bloating, painful breasts, and acne are the most common physical symptoms, whereas mood swings are the most common mental symptoms. These signs and symptoms can also be present in women who aren't suffering from PMS.^{[2][3]} Symptoms are frequently noticed before the sixth days of the menstrual cycle.^[4] For diagnosis, there must be a consistent pattern of emotional and physical symptoms that occur after ovulation and before menstruation and which interfere with daily living.^[2] Premenstrual syndrome has a vast range of possible signs and symptoms, however most women only encounter a few of them. Signs and symptoms of emotional and behavioral disorders, anxiety or tension, depressed state of mind, periods of weeping, Irritability or wrath, as well as mood swing, Changes in appetite and food desires, having difficulty falling asleep (insomnia), Withdrawal from social situations, concentration issues.

Although the specific cause of PMS is uncertain, changes in hormone levels are assumed to be the root reason.^[3]

Factors that may be contributing to this condition are.

- 1) Hormonal cyclic alterations- Premenstrual syndrome symptoms and signs alter with hormonal changes and fade away with pregnancy and menopause.
- 2) Changes in the brain's chemistry- PMS symptoms could be triggered by fluctuations in serotonin, a brain chemical (neurotransmitter) that is known to play a key role in regulating mood states. Serotonin deficiency can cause premenstrual depression, as well as fatigue, food cravings, and sleep disturbances.
- 3) Depression- Undiagnosed depression affects some women with severe premenstrual syndrome, yet it does not cause all of the symptoms.

Reduced salt, alcohol, caffeine and stress, as well as increased exercise, are usually the only recommendations for persons with minimal symptoms, also supplementing this with calcium and vitamin D may be beneficial in some cases.^[3] Physical symptoms may be alleviated by anti-inflammatory medicines such as ibuprofen or naproxen whereas birth control tablets or the diuretic spironolactone may be helpful for those with more severe symptoms.^{[3][4]} Up to 80% of women claim to have symptoms prior to menstruation, with the remaining 20% to 30% of premenopausal women experience PMS

symptoms.^[4] Premenstrual dysphoric disorder (PMDD) is a more severe version of PMS, with additional psychosocial symptoms.^{[4][3]} Three to eight percent of premenopausal women suffer from PMDD.^[4]

Description of the intervention

Vitamins are a group of natural organic substances that are needed in small amounts and act as coenzymes and coenzyme precursors in a variety of metabolic activities. Minerals are organic molecules that the body requires as a source of sustenance in order to function properly.^[5] For neurotransmitter generation and hormonal balance, vitamins and minerals such as vitamin B, vitamin D, calcium, and magnesium are necessary, both of which may have a role in PMS pathogenesis.

Vitamin B6, vitamin D, calcium and magnesium sulphate, magnesium deficiency, among other vitamins and minerals may also have a role in PMS.^[6] Magnesium is required for dopaminergic production in the brain. A dopamine deficiency can impact one's mood and cause anxiety. Previous study has indicated that during the luteal phase, women with PMS have decreased circulating magnesium concentrations, implying that magnesium deficiency may play a role in the pathogenesis of PMS.^[6] Magnesium may play a role in

the development of affective mood disorders, anxiety, sleeplessness, and mood swings are also alleviated.

Vitamin B6 aids in the synthesis of neurotransmitters, which play an important role in regulation of mood. Vitamin B6 is a water-soluble vitamin that can be found in a variety of foods like starchy vegetables which includes potatoes, chickpeas and fishes like tuna, salmon, and others, beef organ meats and liver. Several small studies have found that taking a daily vitamin B6 supplement may help with many of the psychological symptoms of PMS including moodiness, irritability and anxiety.

In addition to vitamins and minerals, herbal products such as passion flower extract, citrus Bioflavonoids, chaste berry extract, Ginkgo biloba, St. John's wort and milk thistle extract, are used to help with PMS.

- 1) Passionflower- It is marketed as a dietary supplement for anxiety and sleep issues, regulate body temperature, relax muscles, reduce pain, heart rhythm issues, menopausal symptoms and attention deficit hyperactivity disorder (ADHD).^[7]
- 2) Citrus bioflavonoids- They can be found in citrus fruits such as tangerines, oranges and grapefruit. They are available in a variety of combinations or as single supplements. These have been utilized to regulate the body's blood flow and reduce swelling.
- 3) Chaste berry extract – It is one of the most popular female reproductive health supplements. According to an evaluation of its benefits for the female reproductive system, it can help patients with PMS in a variety of ways. It was shown to be particularly helpful for physical symptoms including bloating, breast pain, and headaches. It even seems to function better than the antidepressant fluoxetine (Prozac) for certain symptoms. In those with PMDD, however, it proved less efficient than fluoxetine at addressing psychological symptoms including mood swings. Chasteberry may also interact with oral contraceptives and antipsychotic medications thus doctor should be consulted before taking any of these drugs.^[8]
- 4) Ginkgo biloba - It's primarily recognized as a memory aid, but it can also help with PMS symptoms. Its effectiveness in treating PMS symptoms was studied in a clinical trial in 2009. Researchers discovered that taking 40 mg tablets three times a day lowered the intensity of both physical and mental symptoms. If you've ever had a seizure, avoid taking ginkgo biloba. If you take blood thinners like aspirin or warfarin, or if you have diabetes, you should consult your doctor before taking a ginkgo biloba supplement.^[9]
- 5) St. John's wort - It is often regarded as a herbal alternative to antidepressants. It affects both serotonin and norepinephrine, two neurotransmitters that impact mood and are commonly targeted in antidepressants. Although St. John's wort is best recognized for treating depression, it's also one of

the most researched medical herbs, with multiple studies indicating that it can help with PMS symptoms. It helped with both physical and psychological symptoms, including despair and anxiety.^[10]

- 6) Milk thistle- It is an herbal remedy derived from the milk thistle plant, also known as *Silybum marianum*. This prickly plant has distinctive purple flowers and white veins, which traditional stories say were caused by a drop of the Virgin Mary's milk falling onto its leaves. The active ingredients in milk thistle are a group of plant compounds collectively known as silymarin. Its herbal remedy is known as milk thistle extract. Milk thistle extract has a high amount of silymarin (between 65–80%). The silymarin is known to have antioxidant, antiviral and anti-inflammatory properties. In fact, it has traditionally been used to treat liver and gallbladder disorders, promote breast milk production, prevent and treat cancer and even protect the liver from snake bites, alcohol and other environmental poisons. It maintains digestive flora to prevent menstrual cramps.^[11]

Prevalence of PMS

Indian scenario- The prevalence of PMS in India has been found to range from 14.3 percent to 74.4 percent. In India, the prevalence of PMDD has been found to range from 3.7 percent to 65.7 percent. Diagnostic criteria or techniques utilized, as well as socio-demographic and sub-cultural variables within a diverse country like India that impact expressivity of symptoms, all influence prevalence estimates.^[12] The severity of premenstrual syndrome is more in urban population than rural population. The severity of PMS is directly proportional to age, parity, educational status, socioeconomic status.

Global scenario- The global prevalence of premenstrual syndrome is 47.8%. Although the prevalence varies from country to country like 12.2% in France, 98.2% in Iran, 40% in Europe, 85% in Africa and 60% in South America.^[13]

Symptoms of PMS are as following

- A) Emotional and behavioral signs and symptoms
 - Tension or anxiety
 - Depressed mood
 - Crying spells
 - Mood swings and irritability or anger
 - Appetite changes and food cravings
 - Trouble falling asleep (insomnia)
 - Social withdrawal
 - Poor concentration
 - Change in libido
- B) Physical signs and symptoms
 - Joint or muscle pain
 - Headache
 - Fatigue
 - Weight gain related to fluid retention
 - Abdominal bloating

- Breast tenderness
- Acne flare-ups
- Constipation or diarrhea
- Alcohol intolerance

Risk factors for premenstrual syndrome include

- a history of depression or postpartum depression or bipolar disorder
- a family history of PMS
- a family history of depression
- domestic violence
- substance abuse
- physical trauma
- emotional trauma

Associated conditions to PMS include

- dysmenorrhea
- major depressive disorder
- seasonal affective disorder
- generalized anxiety disorder
- schizophrenia^[14]

DISCUSSION AND CONCLUSION

Premenstrual syndrome, commonly referred to as PMS, is the kind of thing that everyone should've been taught about in sex-education but instead were thought to use tampons, sanitary pads and that was the end of it. Despite the many peer-reviewed research papers that have been published some people still insist that PMS is all in our heads. PMS is a genuine and reasonably common issue that unfortunately isn't taken as seriously in society as it should be. Despite the high proportion of people suffering from PMS, doctors have not yet identified a sole cause. There are arguments that hormonal imbalance more specifically, serotonin is the root, although there are also signs it may be genetically inherited. Although there is no definitive cure, there are plenty of suggested treatments whose success varies on a person-to-person basis. One non-medicinal solution is supportive therapy, which involves a medical professional talking to their patient openly and honestly about the realities of living with PMS, the reassurance is an important first step.

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