



The Mystery behind Relaxation Therapy: Adieu to Premenstrual Syndrome

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Abstract

Premenstrual syndrome (PMS) is a very common condition leading to physical, emotional, and psychological distress in females during their reproductive years. Researchers found that as many three of every four menstruating women have experienced some form of PMS. Although the severity of this problem is great, a lot of confusion exists in both medical and lay communities about what is and is not effective for the treatment of PMS. It has a wide variety of signs and symptoms and it may tend to recur in a predictable pattern. The physical and emotional changes experienced with PMS may vary from just slightly noticeable to very intense. Lifestyle adjustments in every kind can help to reduce or manage the signs and symptoms of PMS. Apart from all these, one of the most beneficial methods to reduce the difficulties of PMS is relaxation therapy which includes meditation, visualization, autogenic, Tai Chi, hydrotherapy, exercise, massage, aromatherapy, biofeedback, relaxation breathing, progressive muscle relaxation (Jacobson's progressive relaxation therapy and The Mitchells progressive relaxation therapy) and yoga. Thus when remedies are available why not we celebrate the inborn power of relieving PMS in women.

Keywords

- ▶ mood swings
- ▶ premenstrual syndrome
- ▶ relaxation therapy
- ▶ premenstrual dysphoric disorder

Introduction

Premenstrual syndrome (PMS) occurs prior to menstruation due to the reduction in estrogen and progesterone levels. Women with PMS express physiological, behavioral, and psychological symptoms which will vary in duration and intensity particularly in luteal phase of menstrual cycle in every month. The common symptoms of PMS are bloating, breast tenderness, headache, frequent urination, loss of appetite, insomnia, irritability, depression, lack of energy, and increased or decreased libido.¹ PMS starts after ovulation

phase of menses; however, it disappears with menstrual flow. The endocrine system is the one that explains the physiopathological mechanism of PMS.²

Prevalence

A study was conducted to investigate the worldwide prevalence of PMS using meta-analysis method by Ashraf Direkvand Moghadam and S. Kaikhavanian in September 2013. The pooled prevalence of PMS was 48% and it reported as 40% in Europe, 85% in Africa, 46% in Asia, and 60% in South America.³

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A study conducted by Rebecca Lancelot Ferreira and Dr. Nupoor Kulkarni in Maharashtra, India, May 2019 reveals that prevalence of PMS in India is 61.7 to 72.3%.⁴

A cross-sectional study was done in Purba Medinipur district of West Bengal in 2014 with the samples of 244 students and PMS was reported in 61.5% of girls. According to symptoms in ACOG criteria, 62.7% girls reported depression and 70.5% girls reported anger. Irritability was as high as 84.8%. Anxiety and confusion were among 76.0 and 66.8% of the adolescent girls, respectively.⁵

Definition

According to A.V. Ramen, PMS is a condition that affects a woman's emotions, physical health, and behavior during certain phases of the menstrual cycle, generally just before her menses.⁶

It is a complex set of recurrent, cyclic physical, behavioral, and emotional symptoms experienced during 10 days preceding menstruation, which vary in severity. It is characterized by irritability, insomnia and headache, pain in the breast, abdominal distension, nausea, anorexia, constipation, emotional instability, and urinary frequency.⁷

Etiology

Although the etiology of PMS is unknown, a couple of theories suggest that estrogen excess, estrogen withdrawal, progesterone deficiency, pyridoxine (vitamin B6) deficiency, alteration of glucose metabolism, and fluid–electrolyte imbalances are the considerable causes.

Studies explaining the following etiologies:

- Serotonin deficiency.
- Magnesium and calcium deficiencies.

- Increased endorphins, alterations in the gamma-aminobutyric acid.
- Andhypoprolactinemia.⁸

What Are the Factors and Risk Factors of PMS

Other risk factors included in PMS are as follows:

A history of depression, domestic violence, physical trauma, emotional trauma, stress, low levels of magnesium and vitamin E, diet containing lot of salts and sugars can cause fluid retention, mood changes, and fatigue (► Fig. 1).⁹

Pathophysiology

Even though there are several signs and symptoms, most women experience a few of these (► Fig. 2).¹⁰ They are physiological, behavioral, and psychological symptoms (► Table 1).

For some women, the physical pain and emotional stress are severe enough to affect their daily lives and it may complicate with premenstrual dysphoric disorder (PMDD) which includes symptoms like anger, anxiety, depression, difficulty

Table 1 Signs and symptoms of PMS

Physiological symptoms	Behavioral symptoms	Psychological symptoms
Abdominal bloating	Clumsiness	Crying spells
Acne flare-ups	Food cravings	Depressed mood
Breast tenderness	Impaired work performance	Insomnia
Headache	Lack of interest	Mood swings and irritability
Joint or muscle pain	Social withdrawal	Poor concentration

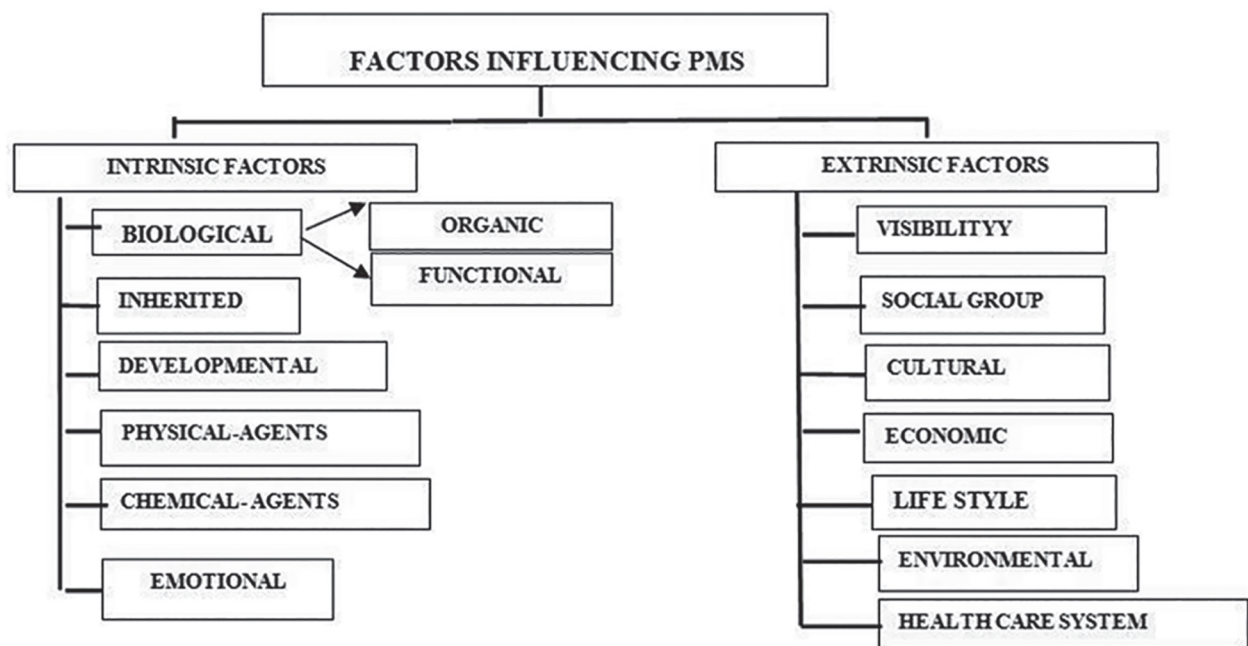


Fig. 1 Factors influencing PMS. PMS, premenstrual syndrome.

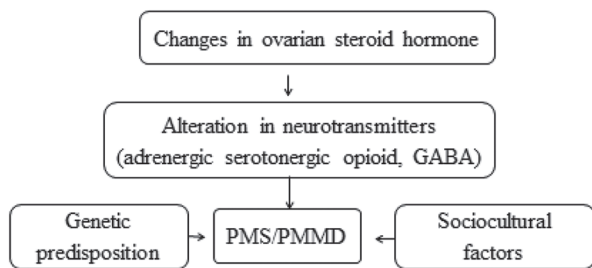


Fig. 2 Pathophysiology.

concentrating, feeling overwhelmed, irritability, tension, and mood swings.¹¹

Diagnosis

International Society for Premenstrual Disorders divides PMS into core and variant. Symptoms causing impairment of daily activities, social activities, and interpersonal relationships are core (or typical). Variants of PMD encompass more complex features, which is divided into four categories namely premenstrual exacerbation of an underlying condition, PMS in the absence of menstruation, progesterone-induced PMS, and PMS with anovulatory ovarian activity. For an accurate diagnosis, PMS symptoms must occur regularly in ovulating women during the luteal phase of the cycle with resolution by the end of menstruation.¹² Currently there is no imaging or biochemical test that is pathognomonic for PMD. Diagnosis is based on structured interview, self-report, and prospective recording of at least two menstrual cycles.¹³

Criteria for Diagnosing Core PMS

1. History—can suggest a diagnosis of PMS.
2. Symptom record—can establish its true nature.
3. Symptoms chart—national association of PMS.
4. The psychological and physical symptoms reoccur periodically over months.
5. Symptoms should be recorded prospectively for at least two cycles using symptoms diary.
6. DSM-IV diagnostic criteria for PMDD—which is equivalent to severe PMS.
7. The symptoms happen during the same time period within every menstrual cycle.
8. The intensity can fluctuate from cycle to cycle.

9. The symptoms disappear with the onset of menstrual flow.⁸

Item Content of the Daily Record of Severity of Problems

Daily Symptoms Charting Instructions

1. Charting from the first day of menstruation.¹⁴
2. Record at the end of each day.
3. To find out whether you have PMS. You may have PMS if:
 - o Symptoms occur during 5 days before your periods.
 - o Once period begins, symptoms end within 4 days.
 - o Symptoms return for at least three menstrual cycles (►Table 2).

Management of PMS

The Relaxation Therapy

1. When faced with numerous responsibilities or demands of life, RT may not be a priority in your days. However, you cannot miss the health benefits of RT.¹⁵ It will be more beneficial with other positive coping methods such as thinking positively, finding humor, problem-solving, managing time, exercising, getting enough sleep, and reaching out to supportive family and friends. In general, RT helps you to calm your mind and increase awareness of body. Hence try to practice RT regularly to reap its benefits (►Fig. 3).

Benefits of RT

1. Lowering blood pressure.⁴
2. Lowering fatigue.
3. Reducing muscle tension and chronic pain.
4. Reducing anger and frustration.
5. Slowing heart rate.
6. Slowing breathing rate.
7. Maintaining normal blood sugar levels.
8. Improving digestion.
9. Increasing blood flow to major muscles.
10. Improving concentration and mood.
11. Improving sleep quality.
12. Boosting confidence to handle problems.

Types of Relaxation Therapy Include

- *Autogenic relaxation*: Visual imagery and body awareness to reduce stress.

Table 2 Daily symptoms tracker

Monthly chart					Name					Weight on first day									
Jan				Feb	Mar	Apr		May		Jun		Jul	Aug		Sep				
Day of menstrual cycle	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Physical symptoms Headache																			
Psychological symptoms Depressed mood																			
Behavioral symptoms Social withdrawal																			

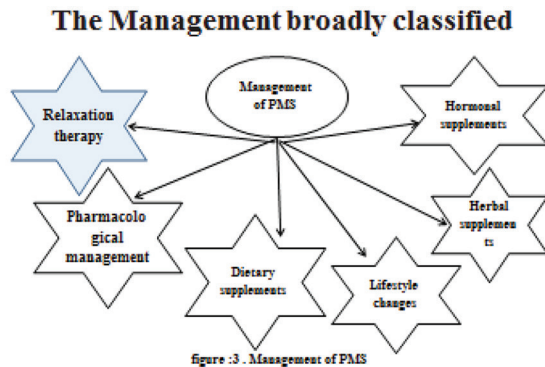


Fig. 3 Management of PMS. PMS, premenstrual syndrome

- *Visualization*: A mental image to take a visual journey to a peaceful, calming place or situation.
- *Progressive muscle relaxation*: Focusing on slowly tensing and then relaxing each muscle group.

The Most Common Forms of Relaxation Techniques Include

Meditation, visualization, autogenic, Tai Chi, hydrotherapy, exercise, massage, aromatherapy, biofeedback, relaxation breathing, progressive muscle relaxation (PMR) and yoga.

Meditation

Meditation does so much more than just help you relax. Many studies reveal that it balances brain chemicals that account for your relaxation, calms tensed muscles, and slows down heart rate. It helps to understand our body and everything that goes along with it including pain.¹⁶ A study conducted by Poornima Viswanathan and Nishal Pinto in 2015, in Karnataka found that meditation has significant healing effect on PMS.¹⁷

Visualization/Imagery

Visualization is another technique for relaxation which improves physical and psychological health. It is especially useful for those with overactive mind. The visualization can be a tropical beach, floating on a cloud, in a beautiful garden scene, or imagining any other safe, pleasant place. In support of the above, a study was conducted by Rebecca Lancelot Ferreira and Dr. Nupoor Kulkarni in 2019 at Ahmednagar, Maharashtra, which showed that both meditation and visualization were effective in reducing the severity of fatigue and headache in PMS.⁴

Autogenic

Autogenic relaxation is a self-hypnosis in which the person imagines that they are calm, and their limbs and body are heavy, relaxed, and warm. If you choose autogenic it should be taught by an autogenic practitioner.

Tai Chi

Tai chi is a Chinese tradition that is practiced as a graceful form of exercise. It is a noncompetitive, self-paced system of

gentle physical exercise and stretching performed in a slow, focused manner accompanied by deep breathing. Each posture flows into the next without pause, ensuring that your body is in constant motion.¹⁸

Hydrotherapy

Hydrotherapy uses water both internally and externally and at varying temperatures. It is called “water cures.” Hot water causes superficial blood vessels to dilate, activating sweat glands, loosening joints, and removing toxic wastes from tissues. Cold water causes superficial blood vessels to constrict, moving blood flow away from an affected area to relieve inflammation.¹⁹ The hydrotherapy includes water jets, underwater massage, and mineral baths (e.g., balneotherapy, Iodine-Grine therapy, Kneipp treatments, Scotch hose, Swiss shower, thalassotherapy) or whirlpool bath, hot Roman bath, hot tub, Jacuzzi, cold plunge and mineral bath, saunas, steam baths, foot baths, contrast therapy, sitz baths, and colonic cleansing which reduce stress and provide relaxation. Hydrotherapy helps to regulate the body’s temperature, eliminate toxins, and stimulate or calm the nervous system. A cold shower can help to energize you in cases of depression or anxiety. Applying warm or hot water over the entire body or specific parts of the body during a shower can help to soothe nervous tension brought on by PMS or menopause.²⁰

Exercise

Aerobic exercise reduces stress, anxiety, and muscle tension as effectively as a dose of a minor tranquilizer medication. A study was conducted to review the effectiveness of exercise on PMS by Emma Pearce and Jolly et al at Birmingham and Loughborough. The primary outcome proved that exercise is an effective treatment that reduces the symptoms of PMS (PMS symptom score [SMD = 1.08; 95% confidence interval = 1.88 to 0.29] vs. comparator, but with substantial heterogeneity [$I^2 = 87$]). The secondary analyses also provide new evidence that exercise might be useful in alleviating specific psychological, physical, and behavioral symptoms associated with PMS.²¹

Massage

Massage is another technique that helps to induce relaxation and provides many physiological and psychological health benefits. Studies proved that it helps to lower the levels of stress hormones such as cortisol, lowers the blood pressure, induce sleep, and reduces anxiety and depression.

Aromatherapy

Aromatherapy involves inhaling essential oils to improve the physical and emotional health by reducing stress, improving sleep, and relieving pain. Aroma can help with the menstrual woes. The PMS affect mood and disrupt routines adds Panton. Aroma is a natural way to create more of those moments where you feel like yourself.²²

Biofeedback

Biofeedback is used to prevent or treat conditions like migraine headaches, chronic pain, incontinence, and high blood pressure.

Progressive Relaxation Therapy

Relaxation breathing is a base for different relaxation techniques. It is a simple technique but its potential for lowering stress level should not be underestimated.

In one method PMR starts by tensing and relaxing the muscles in your toes and progressively working up to neck and head. The common types of PMR are:

1. Jacobson's Progressive Relaxation Therapy or JPRT

It was developed by an American physician Edmund Jacobson in 1908 at Harvard University. In 1929, Jacobson published the book *Progressive Relaxation* which included a detailed procedure. Jacobson's relaxation technique is a type of therapy that focuses on tightening and relaxing specific muscle groups in a sequence that makes you feel calmer and makes you aware of your body and physical sensations. It is also known as PMR.²³

Applications of JPRT

- There are two general purposes for tension control:
- Prophylactic

Therapeutic

Use a place that is warm, quiet, and free from disturbances. If possible, dim the lights and tell people that you should not be disturbed (you may switch off the phones). Be comfortable on the floor, on the bed, or in a chair.

Principles of JPRT

Stress throw a person's nervous system out of balance and relaxation techniques can bring it back by providing the relaxation response that is a state of deep calmness which is the opposite of the stress response.^{24-30,31}

Long-Term Effects of JPRT

- Contracting and relaxing the muscles makes one calmer.
- Reducing generalized level of anxiety.
- Reduction in anxiety related to phobias.
- Reducing frequency and duration of panic attacks.
- Improves ability to face phobic situations.
- Improves concentration and emotional control.
- Increased self-esteem.
- Increased spontaneity and creativity.

2. The Mitchells progressive relaxation therapy

Mitchells (1977) has developed a modified form of progressive relaxation which she has entitled as physiological relaxation. Physiologically the individual is prepared for physical action and none is forthcoming. In this situation once the stressor is forgotten, the individual loses the awareness that his/her degree of muscle tension is excessive. Mitchell states that these excessive levels of muscle tension result in distinct postural variations. She states that people suffering from undischarged stress adopt an exact pattern of positioning in all their joints (Mitchells, 1977, p.42). Mitchells progressive relaxation therapy (MPRT) is a simple technique suitable for all. The "Mitchell method" of physiological RT is also known as "simple method of relaxation." It can be used easily and anywhere to reduce the muscle tension. As days pass, we need to fight or

flight, but one should build up muscular stress as a response to daily life stress such as traffic, work, personal issues, financial problems, and health concerns.

Principles of MPRT

- Tightening or contracting muscles results in movement.
- Movement produces repositioning of the joints and limbs.
- The brain will register a change in body position through muscle, joint, and skin sensation.

Movements are controlled by the nervous system and if one group of muscles is instructed to tighten, the opposite group of muscles receives an instruction to relax. Instructing the opposite muscle groups to tighten will automatically result in "relax" messages being received by the tense muscles and joints. The new position of comfort can be learnt by registering the feeling in the muscles, joints, and skin. Finding the position of ease of all your joints will result in relaxation.^{4,32,33}

You can follow the procedure here³⁴: <https://www.youtube.com/watch?v=f5aeXIKRgeA&t=71s>.

Modify your position in pregnancy (avoid prolonged lying on your back in the advanced stages of pregnancy), labor, and PMS. The MPRT can be used while driving or travelling—particularly in long journeys or after a long day work, lengthy meetings, or sitting too long in front of a screen. There is a lot of research studies which showed that RT relieves PMS.^{1,4,35-38}

Yoga

Yoga is an Indian technique of postures to provide flexibility and relaxation. Breathing has been taught for thousands of years. Research on yoga has shown that it helps to lower sympathetic nervous system arousal, lowers blood pressure, and lowers levels of stress hormones. A study conducted by Mahin Kamalifard, Abbas Yavari, on The Effect of Yoga on 2015 in Tabriz highlights that yoga significantly relieves the PMS symptoms and can be prescribed for the treatment of PMS.¹

Yoga Poses That Can Help with PMS

The American College of Obstetricians and Gynaecologists says that 85% women experience one or more premenstrual symptoms per cycle. Many of them choose the easy way and reach out for painkillers or estrogen birth control pills.

Apart from boosting metabolism, every day yoga practice can alleviate and even prevent PMS symptoms. Evidence suggests Yoga for a healthy menstrual cycle; yoga practice helps to release endorphins, the mood-elevating compounds of the body. It also boosts blood circulation to reproductive organs, eases stress, and encourages deep relaxation^{1,39,40} (→ Fig. 4).

1. Standing forward bend/Padahasthasana

This pose provides relaxation for the entire body and also removes depression and anxiety.

2. Seated spinal twist

- Sit straight on your mat with legs extended and hands resting on the thighs.
- Bend right knee, then cross right leg over and place foot next to left thigh.
- Bend left knee and position left ankle next to right glute.

Yoga poses that can help with PMS

First row : Padahasthasana, Seated Spinal Twist, Butterfly
second row : Makarasana, Balasana, Shavasana



Fig. 4 Yoga poses.

3. Bound angle pose/butterfly pose
 - From a seated position, bring the soles of feet together close to pelvis, allowing knees to fall out to the sides.
 - Hold on with both hands to the outsides of feet and press the soles of feet toward each other. This pose increases hip movements and stretches the inner thighs grounding and calming.
4. Crocodile pose/Makarasana
This posture is effective in reducing indigestion and constipation, a common problem of PMS.
5. Child pose/Balasana
Child pose helps to stretch the hips, thighs, and ankles while reducing stress and fatigue.
6. Corpse pose/Shavasana
All yoga postures end with the Shavasana or the neutral position. This state helps to get into a tranquil state and the body surrenders to peace.

Conclusion

PMS is a very common condition. Its symptoms affect more than 90% of menstruating women. Premenstrual disorders namely PMS and PMDD are a group of physical, cognitive, affective, and behavioral symptoms that occur cyclically during the luteal phase of the menstrual cycle and ends with the onset of menstruation. Relaxation is a process that decreases the effects of stress and helps you to cope with stress and various health problems related to stress. Learning basic relaxation techniques is easy and they are also often free or of low cost.

Conflict of Interest

None declared.

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