**UPDATE**
Clinical
**Module 1747**

**This module covers:**

- Possible causes, risk factors and symptoms of premenstrual syndrome
- Lifestyle and dietary advice that pharmacists can offer
- Pharmacological management options
- Further sources of information and advice to offer patients

**May**

**Clinical: Women's health month**

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| Menopause | May 2 |
| Premenstrual syndrome | May 9* |
| Troublesome periods | May 16 |
| Postnatal depression | May 23 |

**Practice:**

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| Public health campaigns | May 30* |

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# In search of solutions for premenstrual syndrome

**Fiona Paragpuri**

Premenstrual syndrome (PMS) is a chronic condition experienced by menstruating women that is characterised by distressing physical, psychological and behavioural symptoms. These occur regularly during the weeks leading up to the start of menstruation (the luteal phase of the menstrual cycle, between ovulation and menstruation). Symptoms usually last one to three weeks, but there must be at least one symptom-free week in each cycle for a PMS diagnosis to be confirmed.

PMS can affect women at any age, but is most common in those aged between 30 and 40; most menstruating women will experience symptoms of some sort. About 5 to 8 per cent of women fulfil the criteria for a diagnosis of PMS, and a fifth of these will seek medical help. A more severe condition, premenstrual dysphoric disorder (PMDD), affects women to such a degree that it prevents their normal activities.

It is worth noting that PMS can affect not only the sufferer, but husbands, partners and children, too. It can also impact adversely on friends and work colleagues. Some women find coping with life and work difficult while managing their PMS symptoms.

**PMS is a chronic condition that can affect not only the sufferer but those they interact with, too**

## Causes and risk factors

The exact cause of PMS remains unknown, but it does not occur when there is no ovulation, ie before the onset of menstruation, during pregnancy or after the menopause. It is thought that changes in hormone levels (oestrogen and progesterone) during the menstrual cycle, rather than actual blood levels, may contribute to PMS symptoms. Women who suffer from PMS may be oversensitive to changes in progesterone. These hormone changes may also affect the levels of neurotransmitters, such as serotonin, in the brain. This may explain why some serotonin re-uptake inhibitors help some women with PMS. Many vitamins and minerals and essential fatty acids are needed for the neurotransmitters to act, which has prompted speculation about, and research into, the role they play in helping to ease PMS symptoms.

Some lifestyle factors can increase the risk of PMS or ease or worsen symptoms. Being overweight or obese and taking little exercise can increase the risk of PMS symptoms. Also, while stress may not be a direct cause, it can aggravate symptoms. Diet can affect PMS symptoms, too: salty foods may cause bloating; alcohol and caffeine-containing drinks can disrupt mood and energy levels; and a diet low in vitamins and minerals may worsen symptoms. Smoking also increases the risk of PMS. There may be some genetic element as well, since women with a mother who suffers from PMS are more likely to suffer themselves.

In addition, women who suffer from other chronic diseases such as diabetes, irritable bowel syndrome and food allergies may be more prone to PMS. Women with higher blood levels of the inflammatory markers that are produced when the body is under stress have been found

to have more severe PMS symptoms. Keeping good medical control of these conditions can help to reduce PMS symptoms.

## What are the symptoms of PMS?

More than 100 physical and psychological symptoms of PMS have been described. In women who suffer from the more severe PMDD, these may be exaggerated. Some of the more common symptoms include:

- Physical – breast tenderness, bloating, weight gain, headache, backache, nausea, insomnia, worsening of asthma and migraine
- Psychological – mood swings, lethargy and tiredness, depression, feeling upset or emotional, anxiety, aggression, anger, clumsiness, restlessness, difficulty concentrating, confusion and forgetfulness, and changes in appetite or food cravings
- PMDD – feelings of hopelessness, persistent sadness or depression, extreme anger and anxiety, decreased interest in usual activities, sleeping much more or less than usual, very low self-esteem, extreme tension and irritability.

Patients may be asked to keep a diary of their symptoms, and when they occur, over a period of at least two menstrual cycles to aid diagnosis.

PMS will be experienced differently by sufferers. Not all women will experience all of the symptoms described; some may have one or two more dominant symptoms. Symptoms may vary in severity during a cycle, and from one cycle to the next. The pattern of symptoms can also be different for each woman; some experience symptoms for just a few days, while others have problems for the whole period from ovulation to menstruation. Some women do not experience relief from their symptoms until the day of heaviest flow of their period.

## Managing PMS: dietary and lifestyle changes

For mild to moderate PMS, patients may want to try diet and lifestyle changes before resorting to medical treatments. Dietary changes that can help to improve symptoms include:

- eating smaller, more frequent meals to help reduce bloating
- regulating carbohydrate intake, eating more complex carbohydrates such as fruits, vegetables and wholegrains and avoiding excess sugar, which may help maintain even blood sugar levels and reduce food cravings
- reducing salt intake, which may help with bloating and fluid retention
- eating calcium-rich foods (eg cheese and milk products) and plenty of fruits and vegetables, which may help with physical and physiological symptoms
- ensuring an adequate intake of vitamin D, either from diet (eg oily fish, eggs, fortified cereals and spreads) or supplements, which may help reduce some PMS symptoms
- increasing intake of vitamins B1 (found in cereal, legumes and nuts), B2 (milk, red meat, green vegetables) and B6 (watercress, cauliflower, bananas), which help neurotransmitter function
- reducing intake of saturated fats, which may help with breast pain
- eating more oily fish such as salmon, mackerel and sardines, since the essential fatty acids they contain have been shown to help with mood symptoms and pain
- reducing caffeine and alcohol intake, which can affect mood and energy levels, and replacing these with fennel or chamomile tea, which may also help reduce breast tenderness.

Taking regular exercise (aiming for 120 minutes of moderate intensity aerobic activity per week) has been shown to help with PMS symptoms. Overall health will be improved and depression and tiredness may be alleviated. Reducing stress can also be beneficial, with activities such as yoga and pilates proving useful.

Cognitive behavioural therapy (CBT) may also be recommended for patients who have psychological symptoms such as depression or anxiety. Patients may find it helpful to talk to their families and friends about their PMS in order to gain support and to reschedule stressful tasks to other times in their menstrual cycle. Other suggestions include wearing a firm, supportive bra day and night (to help breast tenderness) and wearing support stockings to relieve aching legs.

There are some complementary therapies that claim to help PMS symptoms. These include calcium, vitamin D and magnesium supplements and the herb Agnus castus. Some women find these useful, but there is limited evidence to support their effectiveness.

### *How PMS fits into the menstrual cycle*

A woman's menstrual cycle starts with the first day of her period; this is the beginning of the follicular phase, when levels of follicle stimulating hormone (FSH) rise slightly, triggering the development of an egg. The follicular phase normally lasts 13 to 14 days.

This is followed by the ovulatory phase, which lasts approximately 16 to 32 hours, and it is during this phase that luteinising hormone is released to promote ovulation.

The luteal phase, in which the womb lining thickens in preparation for pregnancy, begins just after ovulation and lasts about 14 days. It is during the luteal phase that PMS symptoms may be experienced.

If there is no pregnancy, the thickened womb lining is shed and a period begins, thereby completing the cycle. The average length of the menstrual cycle is 28 days, but this can vary greatly between women. Some women may also find that the length of their menstrual cycle varies from month to month.

## Pharmacological management

A range of drugs is available for PMS, and patients with moderate to severe symptoms may have to try several before they find one that suits them. Again, women may find it useful to keep a symptom diary over a few months when trialling any new treatment in order to evaluate effectiveness.

Simple painkillers, such as paracetamol and ibuprofen, can help ease headaches, stomach cramps, muscle and joint pains and breast tenderness.

Because changes in progesterone are thought to be a cause of PMS symptoms, suppressing ovulation should relieve them, but combined oral contraceptives have not been found to be very effective. Newer pills containing drospirenone seem to produce better results, and patients may be advised to reduce the pill-free week to only four days or run three packets together without a break (tri-cycling). This may be a good first-line option for women who also require contraception.

Oestrogen, at doses high enough to prevent ovulation, in the form of transdermal patches or gel has proved effective for PMS. Doses of 100mcg to 200mcg daily may be necessary. Women who have not had a hysterectomy will also need to take progesterone, either as tablets or via a progesterone-containing intrauterine system.

There is also evidence to suggest that vitamin B6 (pyridoxine), in doses of up to 100mg daily, may provide some benefit in relieving PMS symptoms.

For women with severe PMS, first-line treatment should be with selective serotonin re-uptake inhibitors (SSRIs), such as citalopram, fluoxetine or paroxetine. These act by increasing the levels of serotonin in the brain and have been shown to be effective in many trials. They provide relief from symptoms such as tiredness, food cravings, sleep problems and depression. Some research suggests that taking an SSRI for the second half of the menstrual cycle only is as effective as taking it continuously. Patients who suffer from side effects of SSRIs – which include nausea, headache, insomnia and loss of libido – could benefit from doing this. However, the treatment of PMS with SSRIs is an off-licence use, and patients should be informed of this.

Gonadotrophin-releasing hormone (GnRH) analogues are only used for women with severe PMS and when all other treatments have failed. They act by blocking the production of oestrogen and progesterone, causing a temporary menopause. Side effects include hot flushes, vaginal dryness, loss of libido and osteoporosis. For this reason, they should only be taken for six months; if use continues, hormone replacement therapy needs to be initiated.

Surgery – the removal of the ovaries, and sometimes the uterus – is usually only

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considered for women with very severe symptoms and when all other treatments have failed. Patients may wish to trial three to six months of GnRH/HRT treatment beforehand to assess whether surgery will be a suitable option.

## PMS and the menopause

Most women find effective solutions to their symptoms, but a small number continue to be affected, with symptoms worsening until the menopause. As women approach the menopause (a time known as the perimenopause, see Update module 1746), hormone fluctuations may increase due to the ovaries not working well and the brain not controlling ovarian function efficiently. Some women may then experience PMS for the first time or find existing PMS symptoms worsen.

These symptoms can be even more difficult to cope with as menopause symptoms – such as hot flushes, night sweats and insomnia – also start to appear. PMS symptoms usually cease when women become postmenopausal and hormone fluctuations stop.

## Additional advice and support that pharmacists can provide

Pharmacists can provide advice and support for women suffering from PMS by:

- giving advice on diet and exercise
- providing smoking cessation advice
- providing information about complementary therapies and supplements
- referring women with moderate or severe symptoms affecting their everyday lives to their GP.

## Useful sources of information that pharmacists can recommend

- The National Association for Premenstrual Syndrome (NAPS) (pms.org.uk) is a membership organisation providing information and support for women with PMS.
- The British Dietetic Association (BDA) (bda.uk.com/foodfacts/pms) has a leaflet about how diet can help with PMS symptoms.
- The NHS Choices Live Well website (nhs.uk/livewell/Pages/Livewellhub.aspx) contains information about healthy eating, weight loss, smoking cessation and exercise.
- More information about PMS that may be useful for patients can be found on the NHS Choices website (nhs.uk/Conditions/Premenstrual-syndrome/Pages/Introduction.aspx) and on the Patient.co.uk website (patient.co.uk/health/premenstrual-syndrome).

***Fiona Paragpuri is a community pharmacist***

**5 minute test**

■ Sign up to take the 5 Minute Test and get your answers marked online: chemistanddruggist.co.uk/update

# Take the 5 Minute Test

1. PMS symptoms are experienced during the follicular phase of the menstrual cycle.
**True or false?**

2. PMS symptoms usually last for three to five days.
**True or false?**

3. PMS does not occur if there is no ovulation.
**True or false?**

4. Women who suffer from PMS may be oversensitive to changes in progesterone levels.
**True or false?**

5. Women with chronic underlying diseases such as diabetes, irritable bowel syndrome and food allergies may be more prone to PMS.
**True or false?**

6. Physical symptoms of PMS include breast tenderness, bloating, headache and backache.
**True or false?**

7. Some women do not experience relief from their symptoms until the day of heaviest flow of their period.
**True or false?**

8. First-line treatment for severe PMS is high-dose oestrogen transdermal patches or gel.
**True or false?**

9. Some women may experience PMS for the first time or find existing PMS symptoms worsen as they approach the menopause.
**True or false?**

10. SSRIs such as citalopram, fluoxetine and paroxetine are licensed for use in severe PMS.
**True or false?**



## Tips for your CPD entry on premenstrual syndrome

***Reflect*** **What factors increase the risk of premenstrual syndrome (PMS)? What lifestyle changes can be tried to help improve PMS symptoms? What is the first-line treatment for women with severe PMS?**

***Plan*** **This article describes PMS and includes information about who can be affected, causes, risk factors and symptoms. Managing PMS with lifestyle changes and pharmacological treatment is also discussed, as well as advice that pharmacists can give to patients.**

***Act*** **Read the Update article and the suggested reading (below), then take the 5 Minute Test (above). Update and Update Plus subscribers can then access answers and a pre-filled CPD logsheet at chemistanddruggist.co.uk/mycpd.**

**Read more about PMS on the NAPS and the Patient.co.uk websites**
tinyurl.com/premenstrual1
tinyurl.com/premenstrual2

**Find out more about how diet can affect PMS symptoms from the British Dietetic Association**
tinyurl.com/premenstrual3

**Think about the advice you could give to patients suffering from PMS and useful resources providing information about diet and exercise you could recommend**

***Evaluate***

**Are you now confident in your knowledge of the symptoms and treatment of premenstrual syndrome? Could you give advice to patients and signpost them to sources of help and information?**

## References


- The National Association for Premenstrual Syndrome: pms.org.uk/about
- NHS Choices: nhs.uk/Conditions/Premenstrual-syndrome/Pages/Introduction.aspx
- The British Dietetic Association: bda.uk.com/foodfacts/pms
- The Royal College of Obstetricians and Gynaecologists: rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/gynaecology/pi-managing-premenstrual-syndrome-pms.pdf
- Patient.co.uk: patient.co.uk/health/premenstrual-syndrome, patient.co.uk/doctor/The-Premenstrual-Syndrome.htm