Keywords Assessment/Symptoms/Perimenopause

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In this article...

- Why, how and when the perimenopause and menopause occur
- The symptoms and long-term consequences of the menopause
- Important investigations during diagnosis and identification of the menopause

Menopause: symptoms, investigations and diagnosis

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Key points

The menopause is a biological stage when menstruation stops permanently, due to the loss of ovarian follicular activity

Symptoms are individual and wide-ranging, affecting both physical and mental health

Diagnostic investigations vary, based on medical and family history

Menopause can have long-term health consequences for both cardiovascular and bone health

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Abstract Menopause is ovarian failure, causing cessation of periods and loss of fertility; the time leading up to this is perimenopause. Symptoms of menopause are varied and include vasomotor, psychological and genitourinary symptoms. Investigations vary depending on individual circumstances, but menopause is diagnosed when there has been no menstruation for 12 months. Due to the wide-ranging impact of the menopause and its symptoms, all nurses should have a good understanding of both. This article is the second in a three-part series exploring the menopause.

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The British Menopause Society (BMS) identified that "menopause is a major life event affecting all women, in a variety of ways, both short and long term" (Currie et al, 2024). In addition, after the Department of Health and Social Care requested evidence for its (2022) *Women's Health Strategy for England*, 48% of respondents identified menopause for inclusion, highlighting the following challenges:

- Difficulty receiving adequate diagnosis rather than alternative diagnoses, such as depression;
- Difficulty accessing appropriate treatment for menopausal symptoms, citing medical reluctance to prescribe;
- Societal reluctance to discuss or accommodate menstrual and women's health.

This article – the second in a three-part series – explores the symptoms and diagnosis of menopause. It focuses on women who experience menopause at a typical age (45-55 years) and those who experience early menopause (aged 40-44 years). The previous article discussed premature ovarian insufficiency (POI), which occurs when ovarian function ceases before the age of 40 years (National Institute for Health and Care Excellence (NICE), 2024a).

Everyone who menstruates will experience menopause. Although this article refers to women, it applies to everyone with female reproductive organs who experiences symptoms of the menopause. It is important that health professionals recognise and consider that the trans community may face greater challenges in accessing appropriate care during this life stage.

Why does the menopause happen?

The menopause is a complex physiological and endocrinological process of ovarian failure due to loss of follicular activity. This means the hormones oestrogen and progesterone decline, and the menstrual cycle eventually ceases, at which point women are no longer fertile (NICE, 2024a).

Women are born with a finite number of oocytes, which immediately start to

Box 1. **Typical menopausal symptoms**

Vasomotor symptoms
- Hot flushes
- Sweating and night sweats
- Shivering
- Faintness and weakness
- Vertigo
- Nausea
- Insomnia
- Palpitations and increased pulse

Psychological symptoms
- Anxiety and panic attacks
- Irritability and anger
- Confusion and forgetfulness
- Depression
- Difficulty concentrating
- Fatigue and loss of energy
- Low self-esteem
- Psychosexual dysfunction and low libido
- Tearfulness

Genitourinary symptoms
- Amenorrhea and changes in bleeding pattern
- Vaginal infections
- Pain during sex
- Post-coital bleeding
- Dysuria
- Vaginal atrophy
- Urinary frequency and urgency
- Post-micturition bleeding
- Urge and stress incontinence
- Vulval itching
- Vaginal dryness

Other symptoms
- Itchy skin
- Arthralgia (joint pain)
- Weight gain
- Headaches
- Allergies

Sources: Currie et al (2024), National Institute for Health and Care Excellence (2024a; 2024b), Royal College of Nursing (2020), Gandhi et al (2016)

diminish: there are ~600,000 at birth, ~200,000 at the age of 20 years, and almost none by the age of 50 years (Park et al, 2022). The average age of menopause in the UK is 51 (NICE, 2024b); however, this may not reflect British women from ethnic minorities, who may experience the menopause earlier and whose symptoms might present in different ways (Prasad, 2023).

The menopause is described as the cessation of menstrual periods. The time leading up to the final period is called the perimenopause; it is characterised by fluctuations in hormone levels that cause menopausal symptoms, including menstrual disturbance (NICE, 2024a).

Follicle-stimulating hormone (FSH) is controlled by the pulsatile secretion of gonadotropin-releasing hormone (GnRH), which is moderated by the negative feedback of oestradiol, progesterone and inhibin B. Luteinising hormone is also controlled by GnRH and surges mid-cycle due to positive feedback from oestradiol, triggering ovulation (Hillard et al, 2017). During perimenopause, the pituitary gland produces high levels of FSH, trying to force the ovaries to release an oocyte. This leads to permanently elevated FSH levels, low levels of oestrogen and irregular menstrual cycles, often without ovulation (Hillard et al, 2017).

Surgical menopause occurs when the ovaries are removed. This may be for a variety of reasons, such as fibroids, endometriosis or cancer. It could also be risk-reducing surgery – for example, when a breast cancer gene is present. The symptoms of surgical menopause can be more intense than those of physiological menopause, and there is an increased risk of long-term health conditions (Royal College of Nursing (RCN), 2020).

If menopause is not triggered by surgical interventions, it is a midlife event. The average female life expectancy is >80 years in England and Wales (Office for National Statistics, 2024), which means that many women now spend over a third of their lifespan in the postmenopausal stage. As such, optimising women's health for the future is paramount.

Diagnosis and investigations

Identification of menopause is based on symptoms and age; it often occurs retrospectively, confirmed when there has been no menstruation for ≥1 year (NICE, 2024a). A diagnosis of perimenopause can be made clinically by reviewing a woman's symptoms. Blood tests are not generally needed, as they are unreliable and results can fluctuate during this time. However, blood tests for FSH may be needed for women aged 40-45 years if there is diagnostic doubt, and they are recommended for women aged <40 years (NICE, 2024a).

To aid diagnosis, the following should be considered:
- Age;
- Full medical history;
- Blood pressure and body mass index;
- Date of last period and period pattern;
- Symptoms and their impact on quality of life;
- Baseline assessment of cardiovascular and venous thromboembolic risk, due to the potential increased risks associated with hormone replacement therapy (HRT);
- Cholesterol or lipid check (Hillard et al, 2017).

Other investigations can be done, depending on medical history, family history, other medical conditions and diagnostic doubt. Women presenting with abnormal bleeding may have a vaginal or abdominal ultrasound (NICE, 2021). Thyroid function tests (free thyroxine and thyroid-stimulating hormone) can be done if the woman's presenting symptoms are lethargy, weight gain, hair loss and hot flushes – particularly if she is non-responsive to HRT (Lal et al, 2017).

An assessment should also be undertaken for risk factors for osteoporosis, such as:
- POI;
- Corticosteroids (≥7.5mg/day of prednisolone or equivalent over three months);
- Parental history of hip fracture;
- Eating disorders;
- Height loss (National Osteoporosis Guideline Group (NOGG), 2024).

This can be undertaken using the FRAX tool to assess risk and identify whether a bone density scan is needed. It may also be useful in helping women decide whether to take HRT (NOGG, 2024). For all women, it is also beneficial to check their cervical and breast screening are up to date before prescribing HRT (Hillard et al, 2017).

Signs and symptoms

The timing, impact and nature of menopausal symptoms varies widely (NICE, 2024a). They may include none or many of the symptoms included in Box 1, as well as others that are not listed. Menopausal symptoms typically last for 4-5 years, but can last for up to 15 years (Simpson and Morris, 2015).

Vasomotor symptoms

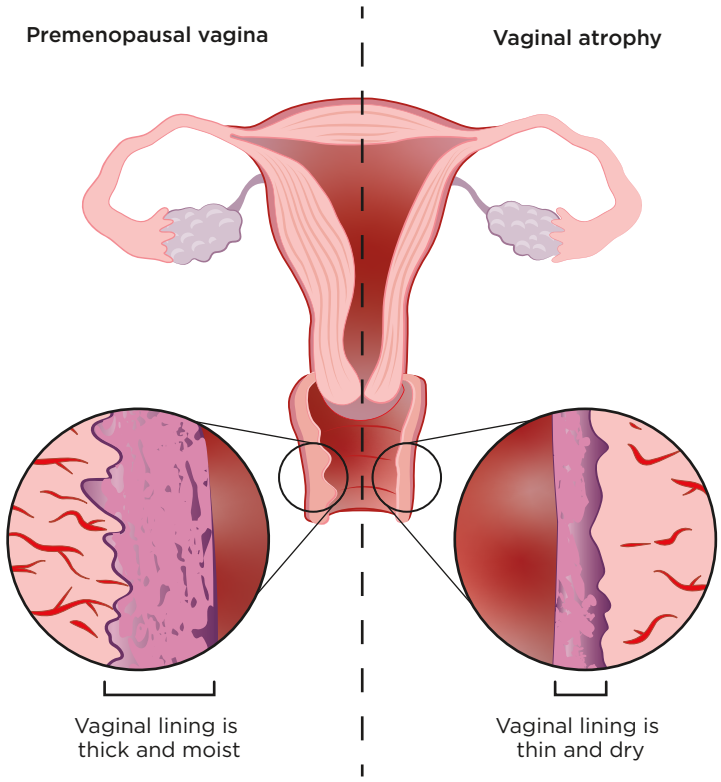
Common and well-known menopausal symptoms are hot flushes and night sweats (NICE, 2024a). However, the pathophysiology of hot flushes is still not fully

understood. They occur because of a narrowed thermoregulatory zone in the hypothalamus, due in part to decreased oestrogen levels; this is supported by the fact that oestrogen replacement therapy practically eliminates them. However, there is some disagreement over the role of serotonin in the process (Bansal and Aggarwal, 2019).

A hot flush is a spontaneous sensation of warmth, accompanied by perspiration, chills and increased heart rate. Perspiration usually affects the chest, neck and face. Hot flushes vary in intensity and frequency; duration is typically 1-5 minutes but can be longer (Bansal and Aggarwal, 2019). They are triggered by "minor elevations of core body temperature" (Bansal and Aggarwal, 2019).

Vasomotor symptoms are experienced by 70% of women "during the menopause transition"; for a third of women, they are "very frequent or severe" (Thurston, 2018). In addition, recent research has suggested that women who have more severe vasomotor symptoms may be at more risk of cardiovascular events later in life (Thurston, 2018). Such symptoms are also not short term, as previously thought: Freeman et al (2011) identified that they can continue for >11 years.

Fig 1. **Vaginal atrophy**



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Psychological symptoms

The menopause can be both positive and negative for women. It can mark the end of painful periods, premenstrual tension, and worries about contraception and conceiving. However, it can also signal the start of older age, a perceived loss of femininity and the loss of fertility.

Women might experience impaired memory and difficulty concentrating; this may be caused by lack of sleep, stress and low mood (Hillard et al, 2017). However, it is not fully understood why psychological symptoms occur during the menopause: hormonal fluctuations may play a role, but it is likely to be multifactorial (RCN, 2020).

Loss of libido also has many causes. Some are psychosocial factors:

- Quality of relationships;
- Negative attitude towards the menopause;
- Cultural attitudes towards sex;
- Lifestyle factors;
- Education and employment status (Rani, 2009).

Other causes of low libido are physical:

- Oestrogen and testosterone deficiency;
- Vaginal atrophy (Fig 1) and pain;
- Ageing;
- Physical illness;
- Menstrual difficulties, such as irregular and/or painful periods;
- Surgical menopause (Rani, 2009).

Genitourinary symptoms

The umbrella term of genitourinary syndrome of menopause (GSM) comprises symptoms including vulval and vaginal itching and dryness, dyspareunia, increased susceptibility to urinary tract infections, and a watery vaginal discharge. GSM can negatively affect sexual function and quality of life (Gandhi et al, 2016).

Vaginal atrophy (Fig 1) is a very common symptom of menopause (Gandhi et al, 2016). It is caused by the lack of oestrogen, which means the vaginal mucosa becomes thin and the vaginal walls become pale and dry (Abernethy, 2015). Urinary symptoms are caused by the lack of oestrogen in the urethra and trigone muscle of the bladder (Hillard et al, 2017).

Long-term consequences

In the long term, a lack of oestrogen increases the risk of osteoporosis and cardiovascular disease (RCN, 2020).

Osteoporosis

Oestrogen protects bones, maintains their health, and helps them to remodel. After the menopause, therefore, there is a decrease in bone density (RCN, 2020). This is greater in the immediate postmenopausal phase (McClung et al, 2021) and can lead to osteoporosis, which causes a fragility fracture in one in three women aged >50 years in the UK (RCN, 2020).

All women are at risk of osteoporosis after the menopause, but this is increased in those who already have a lower bone density (osteopenia) – for example, due to the osteoporosis risk factors discussed earlier (Hillard et al, 2017). Women with both osteopenia and osteoporosis have a higher risk of fracture when trauma occurs. For older women, this can be hip or spinal fractures, which can lead to a prolonged hospital stay and decreased mobility; for younger women, it is more likely to be wrist fractures. In women with both osteopenia and osteoporosis, all fractures take longer to heal (Hillard et al, 2017).

Nurses can advise women to reduce their risk of osteoporosis by:

- Doing weight-bearing exercise;
- Cutting out smoking and alcohol;
- Ensuring sufficient dietary calcium and vitamin D intake, including supplements if necessary (NOGG, 2024).

Box 2. **Case study**

Joanna Moore* (aged 49 years) presented in primary care to discuss menopause. Her periods were irregular and she had hot flushes, night sweats, mood swings and anxiety, which she felt were getting worse. She had read in a magazine that she needed to have these menopausal symptoms checked, and was requesting blood tests to assess her hormone levels and guide treatment. Ms Moore was advised that, in her case, National Institute for Health and Care Excellence guidelines do not recommend a single blood test to identify menopause or guide treatment. Instead, a full medical history was taken, including details of her symptoms and any treatments she had taken. She was directed to reliable information, such as that produced by Women's Health Concern, so she could make balanced decisions about symptom management. A review was arranged for a few weeks later to explore treatment initiation if needed.

*The patient's name has been changed.

Cardiovascular disease

Cardiovascular disease is the leading cause of avoidable death in women and increases in prevalence after the menopause (RCN, 2020). This is related to the lack of oestrogen, and a rise in insulin resistance and low-density lipoproteins. Other risk factors for cardiovascular disease that nurses can screen for include obesity, smoking, high blood pressure and raised cholesterol (Hillard et al, 2017).

There is still some debate around the role of HRT in cardiovascular disease. There is an increased risk of the disease in women with POI, for which HRT is recommended; however, more research is needed into the benefits of HRT for women in perimenopause and the immediate postmenopausal phase in relation to CVD risk (Stevenson, 2022). It is also important that health issues such as high blood pressure, high cholesterol and diabetes are well managed, as they are risk factors for cardiovascular disease (Stevenson, 2022).

The role of the nurse

It is essential that all nurses understand the menopause and its symptoms as, in most fields of practice, they will care for and/or work alongside women experiencing the effects of menopausal symptoms. Nurses should know about:

- Symptoms and their psychosocial implications;
- Hormonal and non-hormonal treatments, and alternative therapies;
- Lifestyle advice;
- Impacts of menopause on women's future health and wellbeing (Noble, 2018).

Nurses in all areas should also be aware of the effects that menopause and hormone alterations can have on other conditions, such as diabetes, autoimmune conditions (Hillard et al, 2017) and mental health issues (NICE, 2024a). Nurses may monitor and take risk assessments of women who have already been prescribed HRT, and signpost them to appropriate sources of information.

Perimenopause and menopause are times of transition that can be confusing and challenging for women (RCN, 2020). They can affect all aspects of women's mental and physical health, and the consequences of misdiagnosed and poorly managed symptoms are wide-reaching (Department of Health and Social Care, 2022). By compassionately and respectfully listening to women and educating them, nurses can empower them to successfully navigate through these life stages. Box 2 details a case study of the process of assessing symptoms and identifying menopause.

The RCN (2022) outlined how the nurse's role can develop in the field of menopause care, identifying that there is a need for nurse specialists in menopause to lead and develop specialist menopause services. Building on previous definitions, it specified that a menopause nurse specialist should:

- Have expert knowledge of the menopause and all treatment options, "including care pathways beyond NICE" guidelines if needed;
- Be an independent prescriber who can undertake ≥100 independent consultations per year, ≥50 of which should be new;
- Be educated to master's level;
- Be able to perform detailed assessments, order appropriate investigations, and make referrals (RCN, 2022).

Conclusion

The menopause is a biological stage in a woman's life, when loss of ovarian follicular activity causes menstruation to permanently cease. This leads to varied symptoms, including vasomotor, psychological and genitourinary symptoms. It also has long-term consequences, including increased risk of cardiovascular disease and osteoporosis, due to the lack of oestrogen. Nurses in all roles and settings should have knowledge of the menopause and its impacts. **NT**

- The next article in this series will explore how the menopause and its symptoms are treated and managed.

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